

# **IDAHO DEPARTMENT OF FISH AND GAME**

## **FEDERAL AID IN FISH RESTORATION 1996 JOB PERFORMANCE REPORT PROGRAM F-71-R-21**



### **REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS CLEARWATER REGION (Project I)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Clearwater Region Mountain Lakes Investigations
Job b.	Clearwater Region Lowland Lakes Investigations
Job c.	Clearwater Region Rivers and Streams Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT III.</b>	<b>HABITAT MANAGEMENT</b>

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## **JOB PERFORMANCE REPORT**

State of: Idaho

Program: Fisheries Management F-72-R-21

Project I: Surveys and Inventories

Subproject 1-B: Clearwater Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

### **ABSTRACT**

Forty-three mountain lakes were surveyed in the Clearwater National Forest during July-September 1996. All but six were barren of fish. Only two of the lakes have been stocked in recent history. Both will be removed from the stocking rotation, as natural reproduction is apparent in each.

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## **INTRODUCTION**

The High Lakes Fisheries Project was initiated as a cooperative program of the U.S. Forest Service and the Idaho Department of Fish and Game in 1986. Lewis-Clark State College (Lewiston, Idaho) became a cooperating partner in 1994. The goal of the program is to develop baseline ecological data on high mountain lakes within the Clearwater River drainage of north central Idaho. During the period 1986 through 1995, 301 mountain lakes were surveyed in the Clearwater and Nez Perce national forests (Bahls 1990, Bahls 1992, Cochnauer and Phillips 1994, Cochnauer and Murphy 1996). Of these, 190 lakes are on the Nez Perce National Forest and 111 on the Clearwater National Forest.

In 1996, the project continued on the Clearwater National Forest as a partnership between the Clearwater National Forest, Idaho Department of Fish and Game, and Lewis Clark State College. This report presents the findings for the 43 lakes surveyed in 1996. All lakes were located in the Lochsa drainage.

## **OBJECTIVES**

The objectives of the 1996 survey were to obtain, analyze, and summarize data to be used for:

1. biological, physical, and chemical inventory of mountain lakes;
2. long-term monitoring;
3. ecological effect of fish introductions; and
4. development of fish management guidelines for individual lakes.

## **METHODS**

The standardized high mountain lake survey methodology as described by Bahls (1991) was used to survey 43 mountain lakes located in the Lochsa River drainage (Figure 1) from July 1 to September 30, 1996.

## **RESULTS AND DISCUSSION**

The location description and proposed management direction based in information collected for each lake are presented in Table 1. Individual lake narratives as to management prescriptions follow.

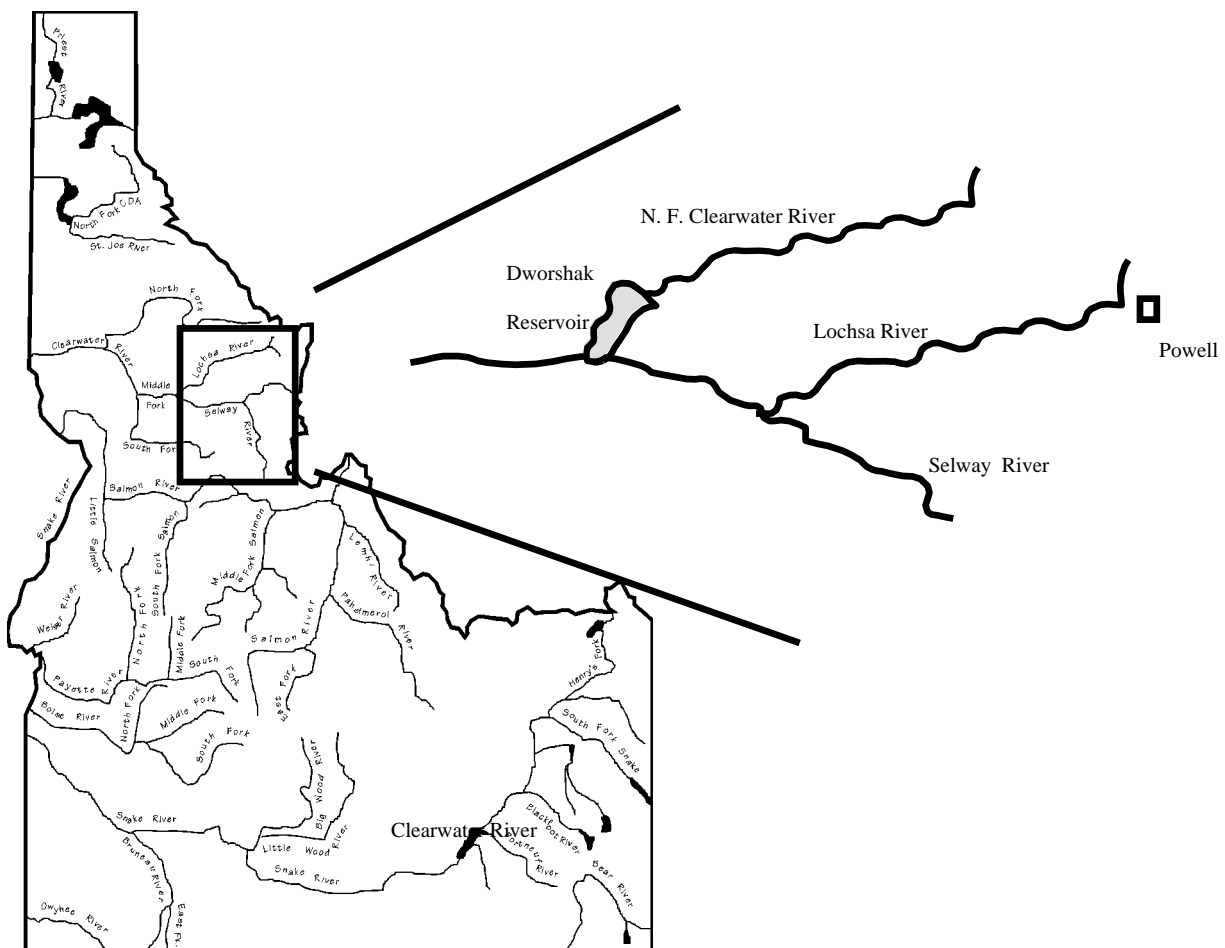


Figure 1. General location of mountain lakes surveys in the Lochsa River drainage in the Clearwater National Forest, 1996.

Table 1. Location and proposed management direction for mountain lakes surveyed in the Clearwater National Forest, 1996.

Lake name	Legal Description			FSY	Class	PSY	Stock	Int.
	Town	Range	Sec.					
Dodge Lake	35N	13E	20	none	Ib	none	--	--
E. Marion Meadows Lake	36N	14E	25	none	Ib	none	--	--
East Muleshoe Lake	35N	15E	30	none	Ib	none	--	--
Friday Ridge Lake	35N	14E	20	none	Ib	none	--	--
Greystone Lake	35N	11E	3	none	Ib	none	--	--
Heslip Lake	35N	11E	25	none	Ib	none	--	--
Hoodoo Pond	34N	14E	1	none	Ib	none	--	--
Jeanette Mountain Lake	34N	15E	14	none	Ib	none	--	--
Kooskooskia Meadow Lake	34N	14E	17	none	Ib	none	--	--
Kooskooskia Meadow Road Pond	35N	14E	14	none	Ib	one	--	--
Lookout Lake	36N	16E	9	none	IIa	none	--	--
Lower Maple Ridge Lake	34N	14E	17	none	Ib	none	--	--
Lower North Wind Lake	35N	14E	7	none	Ib	none	--	--
Lower NW Grimes Lake	37N	17E	7	none	Ib	none	--	--
Lower SE Grimes Lake	37N	17E	7	none	Ib	none	--	--
Marion Meadows Pond	36N	14E	26	none	Ib	none	--	--
Marsh Lake #3	34N	15E	3	none	Ib	none	--	--
Marsh Lake #5	34N	15E	3	none	Ib	none	--	--
Middle Brushy Creek Lake	38N	17E	16	none	Ib	none	--	--
Moose Lake	38N	17E	29	1971	V	resurvey	--	--
No Name Lake	35N	16E	34	none	Ib	none	--	--
North Brushy Creek Lake	38N	17E	16	none	Ib	none	--	--
North Rudd-Moore Lake	38N	16E	28	none	Ib	none	--	--
Northeast Ranger Lake	37N	16E	26	none	Ib	none	--	--
North Section 25 Lake	37N	16E	25	none	Ib	none	--	--
North Shoot Creek Lake	37N	16E	33	none	Ib	none	--	--
North Spruce Creek Lake	37N	16E	1	1948	IIa	none	--	--
Old Stormy Lake	37N	17E	31	none	Ib	none	--	--
Poacher Creek Lake	34N	16E	17	none	Ib	none	--	--
Ranger Lake	37N	16E	26	1974	IIa	none	--	--

Table 1. Continued.

Lake name	Legal Description			FSY	Class	PSY	Stock	Int.
	Town	Range	Sec.					
Savage Ridge Lake	36N	15E	17	none	Ib	none	--	--
Section 27 Lake	37N	16E	27	none	Ib	none	--	--
Siah Lake	37N	16E	27	1966	V	resurvey	--	--
South Brushy Creek Lake	38N	17E	21	none	Ib	none	--	--
South Section 25 Lake	37N	16E	25	none	Ib	none	--	--
South Shoot Creek Lake	37N	16E	3	none	Ib	none	--	--
South Spruce Creek Lake	37N	16E	12	1948	V	resurvey	--	--
Stalk Lake	35N	15E	21	none	Ib	none	--	--
Upper Maple Ridge Lake	34N	14E	18	none	Ib	none	--	--
Upper North Wind Lake	35N	14E	7	none	Ib	none	--	--
Upper NW Grimes Lake	37N	17E	6	none	Ib	none	--	--
Upper SE Grimes Lake	37N	17E	7	none	Ib	none	--	--
West Brushy Creek Lake	38N	17E	20	none	Ib	none	--	--

FSY-First year stocked; PSY-Proposed next stocking year; Int-Proposed stocking interval; Class Ib-fishless lake with no past stocking records; Ib-stocked lake with questionable survival; Ia-natural trout reproduction at moderate or higher level; IVb-stockable lake; V-further study needed to determine status of natural reproduction

### **Dodge Lake**

Dodge Lake is a small (1.1 ha), shallow (100% <3 m depth) lake that does not support fish. The lake does support an abundant population of spotted frogs, both adult and juvenile. Dodge Lake is too shallow to sustain a fish population. Stocking of this lake is not recommended.

### **East Marion Meadows Pond**

East Marion Meadows Pond is a small (<1 ha), shallow (100% <3 m depth) pond. The pond does not support fish and is probably too shallow to sustain any fish population. Long-toed salamander juveniles were abundant in the pond. Stocking of fish into this pond is not recommended.

### **Friday Ridge Lake**

Friday Ridge Lake is a small (<1 ha), shallow (100% <3 m depth) lake that supports abundant populations of invertebrates and amphibians. There are no fish in this lake and stocking is not recommended.

### **Greystone Lake**

Greystone Lake is a relatively small (1.9 ha), shallow (100% <3 m depth), marshy pond. It is too shallow to support fish, but has abundant populations of invertebrates and amphibians. Stocking of fish into Greystone Lake is not recommended.

### **Heslip Lake**

Heslip Lake is essentially a wet, boggy meadow with a few scattered pools. The lake is small (1.9 ha) and shallow (100% <3 m depth). The lake is too shallow to support fish, but the spotted frog population is abundant. Stocking of fish into Heslip Lake is not recommended.

### **Hoodoo Pond**

Hoodoo Pond is a small (0.16 ha), shallow (100% <3 m depth) pond that supports an abundant population of spotted frogs. There are no fish in the lake and future stocking is not recommended.

### **Jeanette Mountain Lake**

Jeanette Mountain Lake is a relatively small (2.5 ha), shallow (100% <3 m depth) lake that supports abundant populations of spotted frogs and long-toed salamanders. There are no fish in this lake and it should not be stocked in the future.

### **Kooskooskia Meadow Lake**

Kooskooskia Meadow Lake is a relatively small (2.3 ha), shallow (100% <3 m depth) pond. The lake does not support a fish population, but is full of invertebrates and amphibians. Fish stocking of this lake in the future is not recommended.

### **Kooskooskia Meadow Road Pond**

Kooskooskia Meadow Road Pond is a small (1.7 ha) and shallow (100% <3 m depth) pond that supports abundant populations of invertebrates and amphibians. The pond does not support fish and future stocking is not recommended.

### **Lower Maple Ridge Lake**

Lower Maple Ridge Lake is a small (0.12 ha), shallow (95% <3 m depth) pond that supports abundant populations of spotted frogs and salamanders. The lake does not support fish and should not be stocked in the future.

### **Lower Northwest Grimes Lake**

Lower Northwest Grimes Lake is the largest of the Grimes lakes (0.93 ha). Its shallow nature (85% <3 m depth) does not support fish and future stocking is not recommended.

### **Lookout Lake**

Lookout Lake is a flooded meadow of small size (< 1 ha) and shallow depth (100% <3 m depth). There are rainbow trout *Oncorhynchus mykiss* in the pond as a result of the tributary connection with Dan Lake. The fish probably migrate into Lookout Lake during the non-winter months to feed and then move back into the tributaries or Dan Lake to overwinter. Stocking fish into this lake is not recommended.

### **Lower Southeast Grimes Lake**

Lower Southeast Grimes Lake is a small (0.2 ha), shallow (70% <3 m depth) body of water. It does not support fish but does have populations of spotted frogs and long-toed salamanders. Stocking of fish into this lake is not recommended.

### **Marion Meadows Pond**

Marion Meadows Pond is a series of small, shallow pools that probably become dry in late summer. Its small size (0.85 ha) and shallow depth (100% <3 m) would not support fish. Both long-toed salamanders and spotted frogs are found in the pond. Stocking of fish into this lake is not recommended.

### **Marsh Lake #1**

Marsh Lake #1 is actually not even a lake or pond at all, but a large pool of Big Sand Creek. This pool was not surveyed. Marsh Lakes #1-6 are named and numbered from Marsh Lake #1 (pool) clockwise in a circle. Only Marsh Lakes #3 and #5 were surveyed.

### **Marsh Lake #2**

Marsh Lake #2 was not surveyed, as the small lake (<1 ha) was dry. The lake is primarily a muddy moose wallow with scattered small puddles of water.

### **Marsh Lake #3**

The total size of all six Marsh lakes is only 1.8 ha. The shallow depth (100% <3 m) would probably not support fish although two fish were observed in the lake. The westslope cutthroat *O. clarki lewisi* and brook trout *Salvelinus fontinalis* were apparently from Big Sand Creek and were trapped in this lake as spring flood water receded. Relatively few spotted frog adults and juveniles were observed in this lake. Stocking of fish into this lake is not recommended.

### **Marsh Lake #4**

Marsh Lake #4 was not surveyed as the small lake (<1 ha) was only a wet meadow.

#### **Marsh Lake #5**

Marsh Lake #5 is a relatively small (1.8 ha), shallow (100% <3 m depth) lake that is fishless. However, there are many invertebrates and amphibians. The lake should not be stocked.

#### **Marsh Lake #6**

Marsh Lake #6 was not surveyed as the lake was dry.

#### **Middle Brushy Creek Lake**

Middle Brushy Creek Lake is a small (0.53 ha), shallow (100% <3 m depth) lake that does not support fish. A few spotted frogs were observed around the lake. The lake should not be stocked with fish.

#### **Moose Lake**

Moose Lake is a large (7.2 ha), deep (13.4 m maximum depth) alpine lake that supports both rainbow and rainbow/cutthroat trout. Natural reproduction is occurring in the lake system as several age classes of rainbow and cutthroat trout were found. The lake should be removed from the fish stocking schedule.

#### **No Name Lake**

No Name Lake is a relatively small (1.1 ha), shallow (100% <3 m depth) lake that does not support fish. Both spotted frogs and long-toed salamanders are found in the lake. The lake should not be stocked with fish.

#### **North Brushy Creek Lake**

North Brushy Creek Lake is a small (0.73 ha), shallow (100% <3 m depth) lake that does not support fish. There are abundant spotted frogs and a few long-toed salamanders in the lake. Fish stocking in the lake is not recommended.



### **North Rudd-Moore Lake**

North Rudd-Moore Lake is a relatively small (1.6 ha), shallow (100% <3 m depth) lake that does not support fish. Spotted frogs are abundant in the lake. Fish stocking in this lake is not recommended.

### **North Section 25 Lake**

North Section 25 Lake is a small (0.28 ha), shallow (100% <3 m depth) lake that does not support fish. There are abundant populations of both spotted frogs and long-toed salamanders. Fish stocking in this lake is not recommended.

### **North Shoot Creek Lake**

North Shoot Creek Lake is a relatively small (1.3 ha), deep (6.1 m maximum depth) lake that does not support fish. There are abundant invertebrates and a few amphibians in the lake. North Shoot Creek Lake is under consideration for fish stocking in order to address the impacts of fish on zooplankton and amphibian communities. Fingerling cutthroat trout may be stocked in the lake in 1997 and the zooplankton and amphibian communities monitored for 5-6 years.

### **North Spruce Creek Lake**

North Spruce Creek Lake is a relatively small (1.3 ha), shallow (90% <3 m depth) lake that does support naturally reproducing cutthroat trout. The lake also support relatively moderate abundance of spotted frogs. Because natural reproduction does occur in this lake, stocking should be discontinued.

### **Northeast Ranger Lake**

Northeast Ranger Lake is a relatively small (1.4 ha), shallow (100% <3 m depth) lake that does not support fish. The lake does support high abundant populations of amphibians. Fish stocking in this lake is not recommended.

### **Old Stormy Lake**

Old Stormy Lake is a relatively small (1.7 ha), shallow (100% <3 m depth) lake that does not support fish. The lake does support abundant populations of spotted frogs and long-toed salamanders. Fish stocking in this lake is not recommended.

### **Poacher Creek Lake**

Poacher Creek Lake is a small (0.76 ha), shallow (100% <3 m depth) lake that does not support fish. The lake does support populations of amphibians. Fish stocking in this lake is not recommended.

### **Ranger Lake**

Ranger Lake is a large (2.9 ha), shallow (75% <3 m depth) lake that supports a naturally reproducing rainbow trout populations. Continued fish stocking in this lake is not recommended.

### **Savage Ridge Lake**

Savage Ridge Lake is a relatively small (1.3 ha), shallow (80% <3 m depth) lake that does not support fish. There were no spotted frogs observed, but the lake supported an abundant population of long-toed salamanders. Fish stocking in this lake is not recommended.

### **Section 27 Lake**

Section 27 Lake is a small (0.2 ha), shallow (100% <3 m depth) that does not support fish. Both spotted frog and long-toed salamander populations were abundant. Fish stocking in this lake is not recommended.

### **Siah Lake**

Siah Lake is a large (4.8 ha), deep (21.9 m max depth) alpine lake that supports both rainbow and cutthroat trout. The rainbow trout population is naturally reproducing while the cutthroat trout population seems to be sustained only by stocking. Continued stocking of this lake is not recommended.

### **South Brushy Creek Lake**

South Brushy Creek Lake is a relatively small (1.3 ha), shallow (85% <3 m depth) lake that does not support fish. The lake does support populations of spotted frogs and long toed salamanders. Fish stocking in this lake is not recommended.

### **South Section 25 Lake**

South Section 25 Lake is a small (0.2 ha), shallow (100% <3 m depth) lake that does not support fish. There were a few amphibians. Fish stocking in this lake is not recommended.

### **South Shoot Creek Lake**

South Shoot Creek Lake is a small (0.2 ha), shallow (100% <3 m depth) lake that does not support fish. Amphibian populations are relatively abundant in the lake. Fish stocking in this lake is not recommended.

### **South Spruce Creek Lake**

South Spruce Creek Lake is a large (3.8 ha), deep (12.2 m maximum depth) lake that supports a naturally reproducing population of westslope cutthroat trout. There are a few spotted frogs and no long-toed salamanders in the lake. Continued stocking in this lake is not recommended.

### **Stalk Lake**

Stalk Lake is a small (0.16 ha), shallow (100% <3 m depth) lake that does not support fish. Fish stocking in this lake is not recommended.

### **Upper Maple Ridge Lake**

Upper Maple Ridge Lake is a small (0.12 ha), shallow (100% <3 m depth) lake that does not support fish. Both spotted frogs and long-toed salamanders are relatively abundant in this lake. Fish stocking is not recommended.

### **Upper North Wind Lake**

Upper North Wind Lake is a small (0.6 ha), shallow (100% <3 m depth) that does not support fish or much of any other type of aquatic life. The lake probably dries completely during the late summer. Fish stocking in this lake is not recommended.

### **Upper Northwest Grimes Lake**

Upper Northwest Grimes Lake is a small (0.19 ha), shallow (100% <3 m depth) lake that does not support fish. Spotted frogs were relatively abundant but no long-toed salamanders were observed. Fish stocking in this lake is not recommended.

### **Upper Southeast Grimes Lake**

Upper Southeast Grimes Lake is a small (0.8 ha), shallow (100% <3 m depth) lake that does not support fish. Only a few long-toed salamanders were observed, but spotted frogs were abundant. Fish stocking in this lake is not recommended.

### **West Brushy Creek Lake**

West Brushy Creek Lake is a relatively small (1.74 ha), moderately deep (4.8 m max depth) lake that does not support fish. Spotted frogs were relatively abundant, but no long-toed salamanders were observed. Fish stocking in this lake is not recommended.

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## **JOB PERFORMANCE REPORT**

State of : Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

### **ABSTRACT**

Clearwater Region fisheries management personnel and conservation officers checked 368 anglers that spent 565.3 hours fishing lakes, ponds, and reservoirs and caught 529 game fish.

Clearwater Region fisheries management personnel sampled Winchester Lake on May 28, 1996. Composition of naturally produced species was 75% yellow perch *Perca flavescens* (N = 111), 11.5% brown bullhead *Ameiurus nebulosus* (N = 17), 10.1% largemouth bass *Micropterus salmoides* (N = 15), and 3.4% black crappie *Pomoxis nigromaculatus* (N = 5). Yellow perch were illegally introduced in Winchester Lake in the early 1990s.

We sampled smallmouth bass *M. dolomieu* in Dworshak Reservoir using standard electrofishing and hook-and-line techniques. From May 1 to June 5, 1996 we collected 439 smallmouth bass. We tagged 128 bass larger than 250 millimeters total length with \$5.00 reward tags. Anglers returned 14 tags, representing an exploitation rate of 9%. We sampled annual trend monitoring areas on May 14, 15, and 22. Proportional Stock Density (PSD) of smallmouth bass collected from the trend areas was 30. This represents the highest PSD since annual monitoring began in 1993. PSD of the entire sample was 26.

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## OBJECTIVES

1. Conduct routine, impromptu creel surveys on lowland lakes and reservoirs to track fisheries composition and catch rate.
2. Monitor smallmouth bass *Micropterus dolomieu* population in Dworshak Reservoir, determining population indices and angler exploitation.
3. Perform lowland lake monitoring survey on Waha and Winchester lakes.
4. Monitor stock structure of largemouth bass *M. salmoides* in Spring Valley Reservoir.

## METHODS

We performed standard fish community surveys using Idaho Department of Fish and Game standard survey protocol (Appendix A).

We sampled fish in lowland lakes using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 16-foot john boat. All electrofishing took place between 2000 hours and 0300 hours. We sampled trout *Oncorhynchus spp.* and kokanee *Oncorhynchus nerka* in lowland lakes using gill nets. We used standard floating experimental gill nets 150 feet long by 6 feet deep with six panels of different size mesh. Mesh sizes were 3/4 in, 1 in, 1-1/4 in, 1-1/2 in, 2 in, and 2-1/2 in. One or two nets were set and fished from late afternoon until early the next morning. Total net hours were recorded with the catch.

## RESULTS

### Creel Survey

Clearwater Region fishery management personnel, conservation officers, and volunteers checked 368 anglers at regional lowland lakes and ponds in 1996. These anglers fished 565.3 hours to catch 529 game fish and 1 nongame fish; a catch rate of 0.94 fish per hour. The catch consisted of 77% rainbow trout *O. mykiss* (Table 1).

Table 1. Summary of creel survey findings for Clearwater Region lowland lakes and reservoirs, 1996.

Lowland Lake	Anglers	Total hours	RBT	CRA	PMK	BLG	PRC	BBH	MWF	SMB	KOK	SQW	LMB	Total	CPUE
Blue Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Dworshak Res.	19	27	3	0	0	0	0	0	0	18	2	1	0	24	0.88
Fivemile Pond	15	28	6	0	0	0	0	0	1	0	0	0	0	7	0.25
Henrys Gulch	5	7	0	0	0	23	0	0	0	4	0	0	0	27	3.86
Mann Lake	50	87.3	102	26	1	0	0	0	0	0	0	0	0	129	1.48
Moose Creek Res.	3	6	0	0	0	0	0	0	0	0	0	0	1	1	0.17
Robinson Pond	14	8	4	0	0	0	0	0	0	0	0	0	0	4	0.50
Soldiers Meadow Res.	21	41	35	0	0	0	0	0	0	0	0	0	0	35	0.85
Spring Valley Res	114	235	162	0	0	30	0	0	0	0	0	0	6	198	0.84
Waha Lake	2	6	1	0	0	0	0	0	0	0	0	0	0	1	0.17
Winchester Lake	125	120	93	0	0	0	5	6	0	0	0	0	0	104	0.87
Total	368	565.3	406	26	1	53	5	6	1	22	2	1	7	530	0.94

RBT=Rainbow trout  
CRA=Black crappie  
PMK=Pumpkinseed  
BBH=Brown bullhead

SMB=Smallmouth bass  
KOK=Kokanee  
MWF=Mountain whitefish  
SQW=Northern squawfish



## **Dworshak Reservoir**

### **Smallmouth Bass**

Clearwater Region fishery management personnel sampled smallmouth bass in Dworshak Reservoir using electrofishing and hook-and-line techniques from May 1 to June 5, 1996.

We also used standard electrofishing techniques to monitor smallmouth bass in the following established transects in Dworshak Reservoir.

1. shoreline from Dent bridge to camp across from Dent boat ramp
2. entire shoreline of Magnus Bay
3. entire shoreline of Swamp Creek Bay

We sampled 157 smallmouth bass ranging in size from 90 to 430 mm total length in these established transects on May 14, 15, and 22 (Figure 1). Proportional Stock Density (PSD) of this sample was 30. This represents the highest PSD since annual monitoring began in 1993.

We collected a total of 439 smallmouth bass throughout Dworshak Reservoir. PSD of the entire reservoir sample was 25 (Figure 2). Of these bass we tagged 128 larger than 250 mm total length with \$5.00 reward tags. Anglers returned 14 tags, representing an exploitation rate of nine percent.

## **Standard Lake Surveys**

### **Spring Valley Reservoir**

Clearwater Region fisheries management personnel sampled Spring Valley Reservoir on May 24, 1996. Species composition was 67% bluegill sunfish *Lepomis macrochirus* (N=342), 32.5% largemouth bass (N=166), and 4% black crappie *Pomoxis nigromaculatus* (N=2).

Proportional Stock Density for largemouth bass was 57. This represents the second highest PSD value for largemouth bass in Spring Valley Reservoir since 1983 and the fourth consecutive year of PSD above 45 (Table 2).

### **Waha Lake**

Clearwater Region fisheries management personnel sampled Waha Lake on September 12, 1996. Species composition was 34% smallmouth bass (N=128), 29% rainbow trout (N=109), 21% kokanee salmon (N=78), 9% yellow perch *Perca flavescens* (N=33), and 7% black crappie (N=26). Length frequencies are shown in Figure 3.

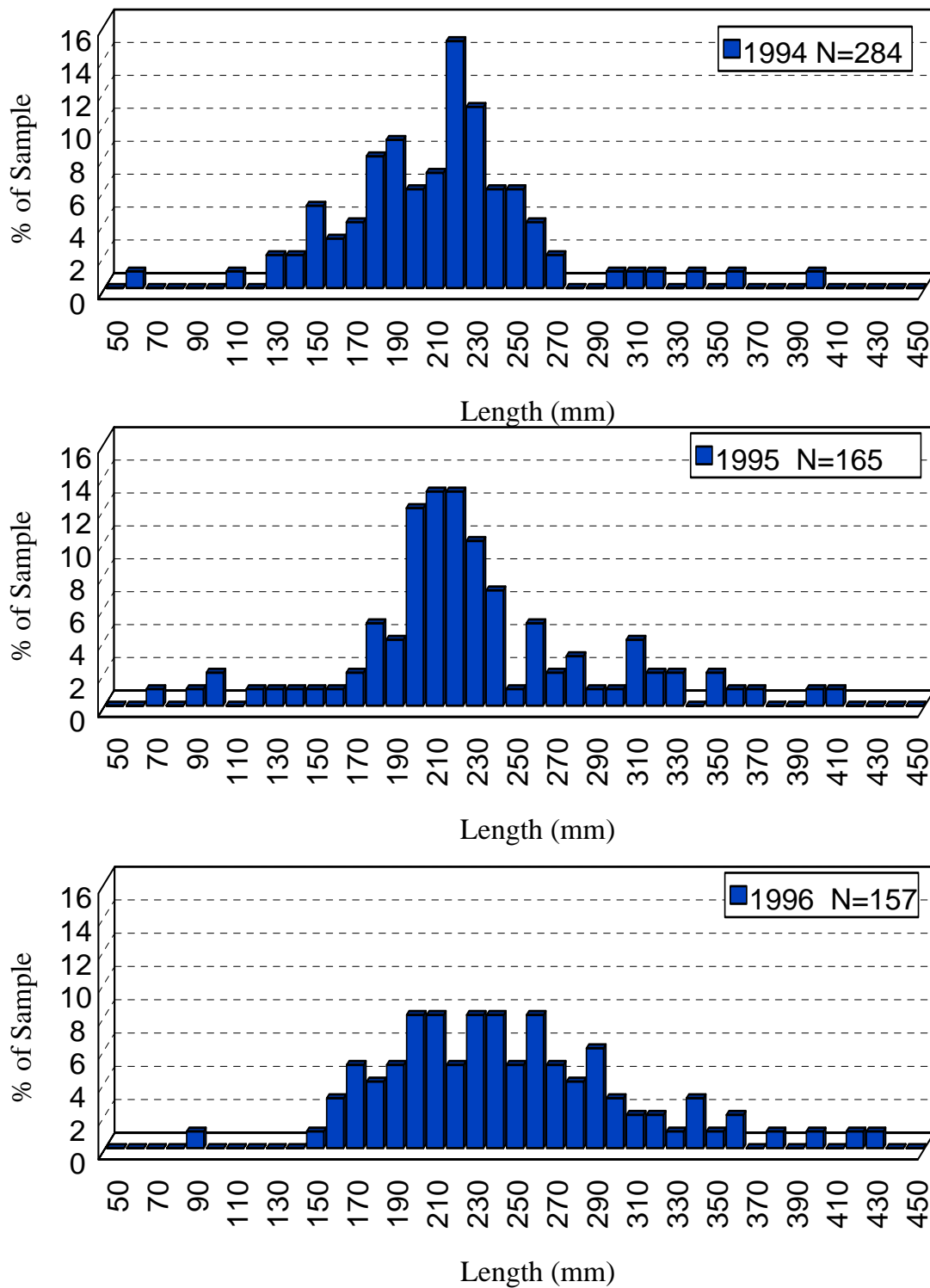


Figure 1. Comparative total length frequencies of smallmouth bass from Dworshak Reservoir, expressed as a percent of total sample.

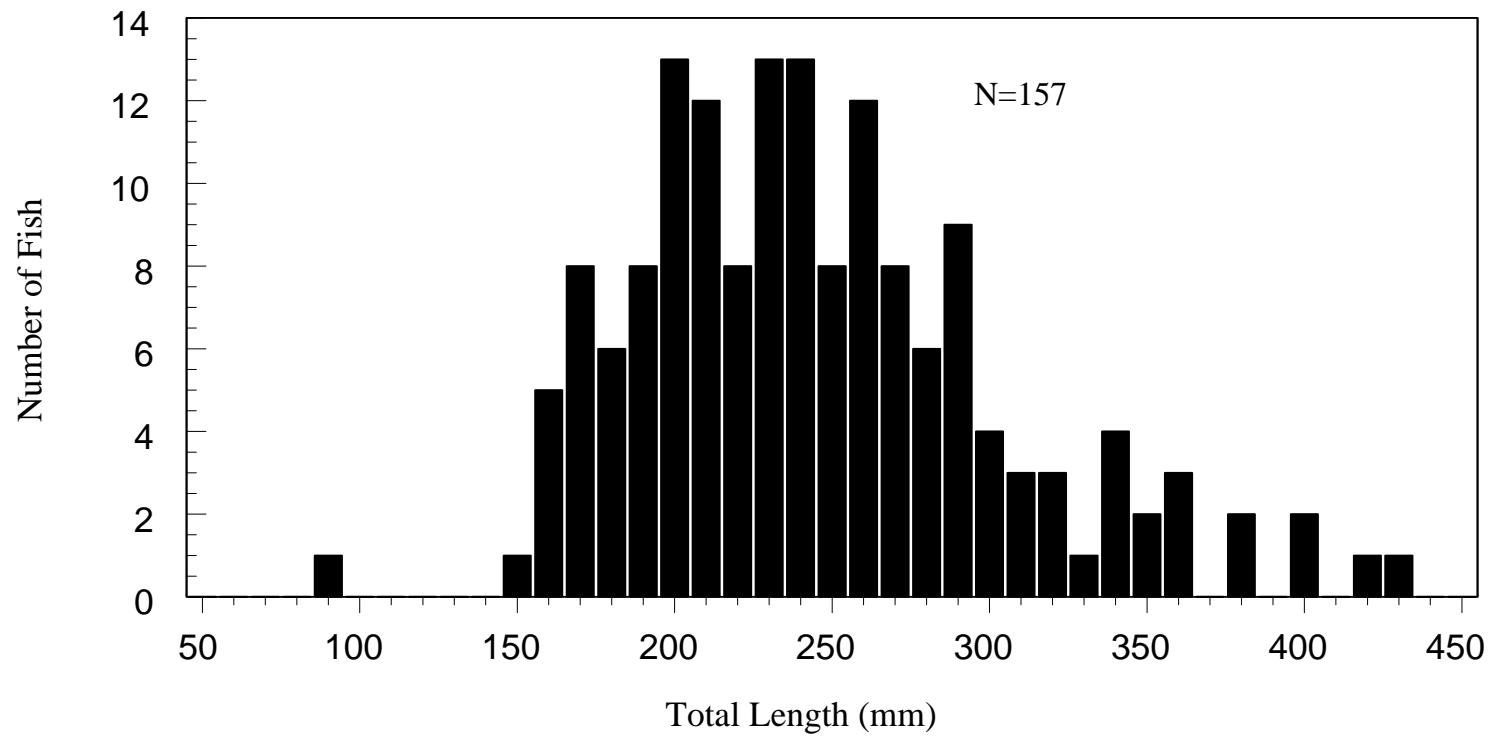


Figure 2. Total length frequency of smallmouth bass from Dworshak Reservoir, 1996.

Table 2. Total length frequency of largemouth bass from Spring Valley Reservoir, 1983-1996.

Length mm	9/22/83	9/26/84	1988	6/18/91	5/22/92	5/21/93	5/25/94	5/16/95	5/24/96
<100	14	0	13	1	31	210	39	3	4
100	28	0	23	0	0	1	45	33	0
110	40	5	31	2	0	0	35	137	11
120	54	4	19	1	2	16	26	122	5
130	37	4	18	1	6	33	10	109	19
140	21	18	9	9	11	61	11	38	48
150	13	29	2	27	15	48	24	31	20
160	6	33	2	39	9	31	37	42	13
170	2	14	5	30	19	15	28	49	8
180	0	12	6	19	15	7	17	26	4
190	1	9	6	12	3	7	14	9	6
200	4	4	5	20	6	3	4	1	3
210	4	0	4	75	11	5	6	2	3
220	0	0	2	110	19	3	5	2	1
230	0	0	0	55	29	5	6	2	0
240	2	1	0	10	26	0	5	1	0
250	1	0	1	9	22	1	1	2	0
260	1	0	0	4	14	0	2	0	0
270	2	0	0	0	9	0	1	2	1
280	1	0	0	0	3	0	1	0	1
290	0	0	0	0	2	1	0	4	2
300	0	0	0	0	3	0	1	5	1
310	0	1	0	0	0	2	1	8	1
320	0	0	0	0	2	1	3	3	2
330	0	0	0	0	0	3	1	5	0
340	0	0	0	0	3	3	2	1	2
350	0	0	0	0	0	4	2	0	0
360	0	0	0	0	2	5	1	0	0
370	0	0	0	0	0	1	2	0	1
380	0	0	0	0	0	0	1	0	2
390	0	0	0		0	2	4	0	0
400	0	0	0	0	0	0	4	3	0
410	0	0	0	0	0	0	3	0	0
420	0	0	0	0	0	0	4	1	0
430	0	0	0	0	0	0	0	1	2
440	0	0	0	0	0	0	0	0	1
450	0	0	0	0	0	0	0	1	2
460	0	0	0	1	1	0	0	0	2
470	0	0	0	1	0	0	0	0	1
480	0	0	0	0	1	0	0	0	0
490	0	0	0	0	0	0	0	0	0
500	1	0	0	0	0	0	0	0	0
Number	232	134	146	427	264	468	346	643	166
Ave length	129	159	129	203	199	123	161	143	174
PSD	6	17	0	1	8	54	48	64	57
%>200 mm	7	4	8	67	58	8	17	7	17
%>300 mm	0	1	0	1	5	4	8	4	10

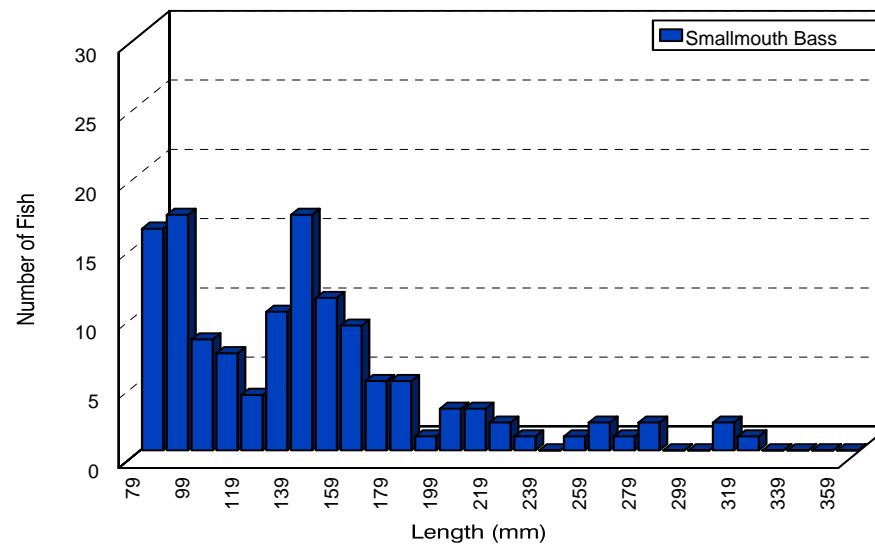
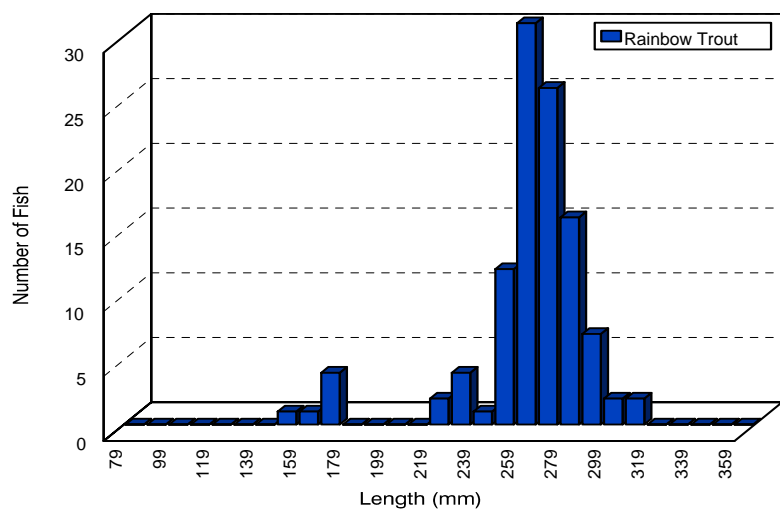
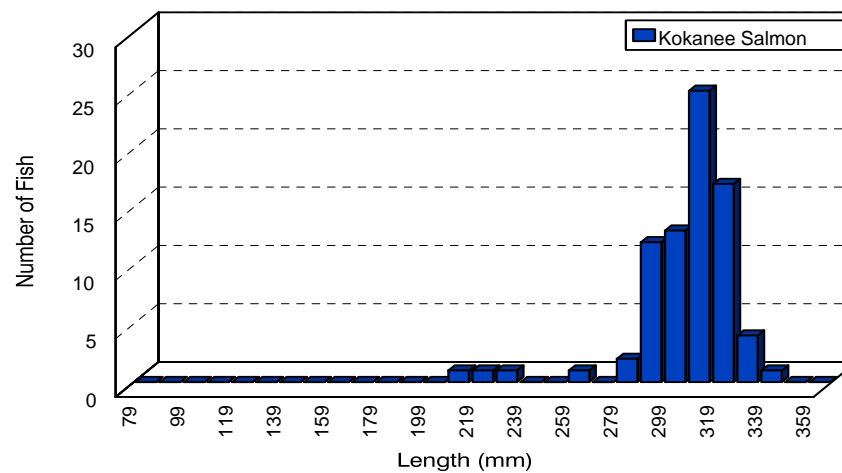
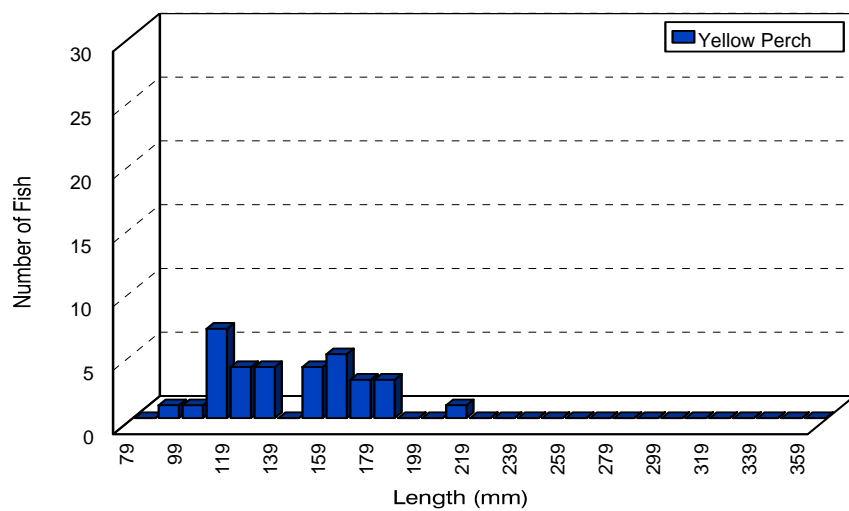


Figure 3. Total length frequency of yellow perch, kokanee, rainbow trout, and smallmouth bass in Waha Lake, 1996.

## Winchester Lake

Clearwater Region fisheries management personnel sampled Winchester Lake on May 28, 1996. Species composition was 52% rainbow trout (N=163), 36% yellow perch (N=111), 5% brown bullhead *Ameiurus nebulosus* (N=17), 5% largemouth bass (N=15), and 2% black crappie (N=5). Yellow perch comprised 75% of the naturally produced fish community in Winchester Lake. Yellow perch were illegally introduced into Winchester Lake in the 1990s. Length frequencies are shown in Figure 4.

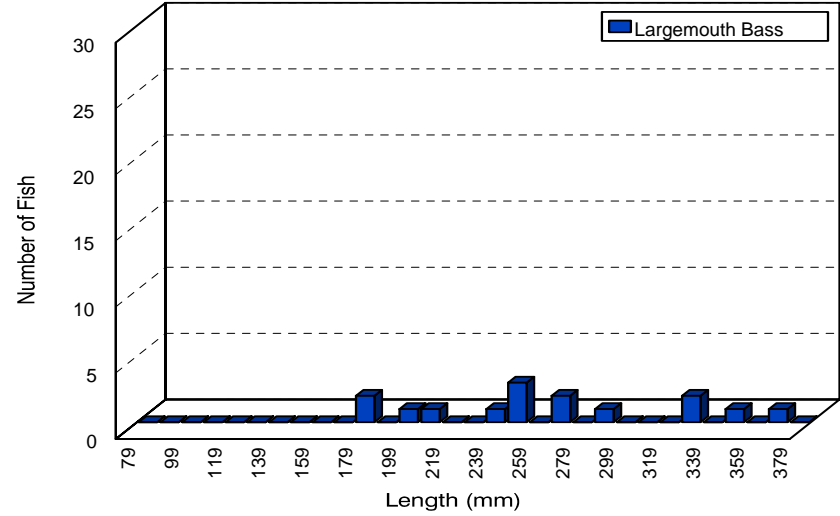
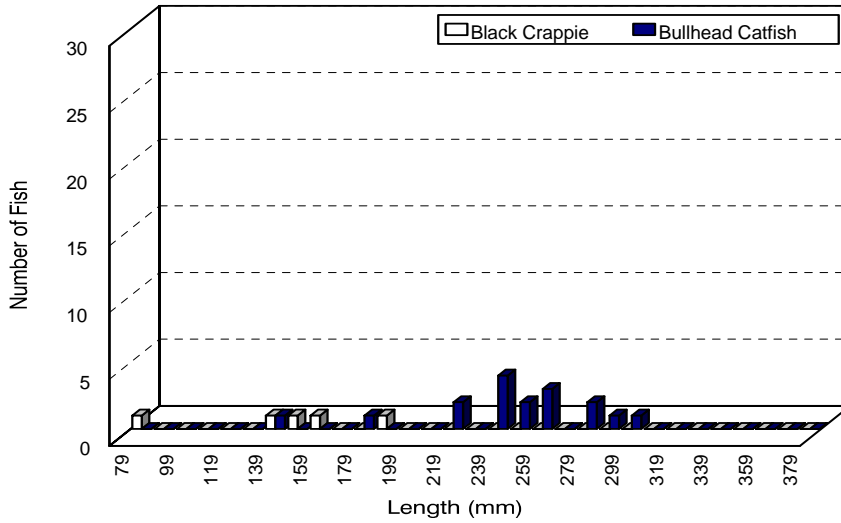
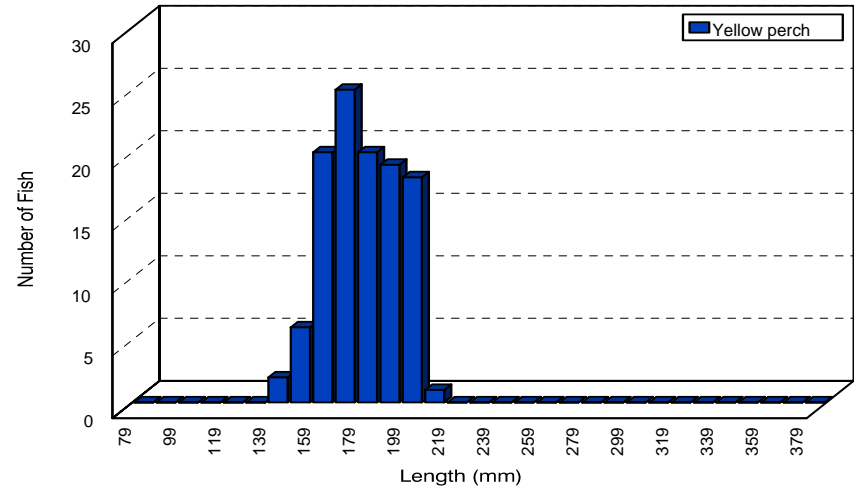
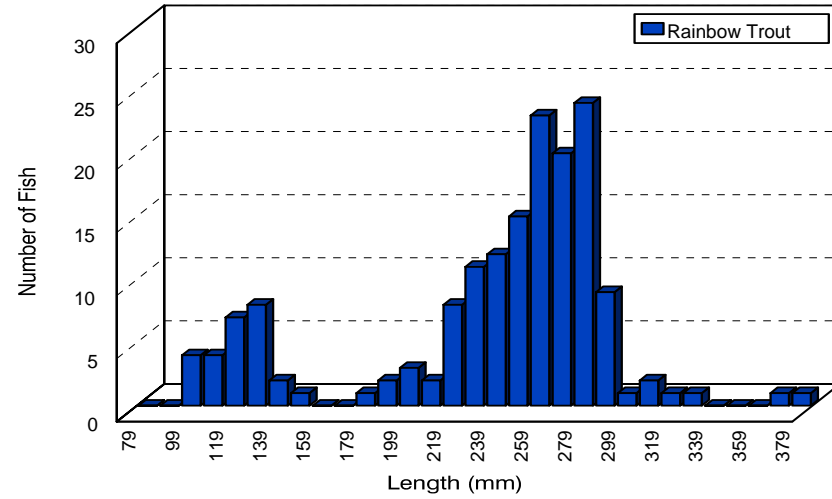


Figure 4. Total length frequency of rainbow trout, yellow perch, black crappie, brown bullhead, and largemouth bass in Winchester Lake, 1996.

## **APPENDIX**



Appendix A. Fish community survey procedures and guidelines.

LOWLAND LAKES AND RESERVOIRS  
STANDARD FISH COMMUNITY SURVEY PROCEDURES, CORE DATA, AND  
REPORT GUIDELINES

I. Surveys will be conducted using the following gear:

A. Gill nets

Floating and sinking monofilament nets, 150' x 6', with six panels composed of 3/4", 1", 1-1/4", 2", and 2-1/2" bar mesh. One floating and one sinking net combined fished overnight equals one unit of gill net effort.

B. Trap Nets

75' lead, 3' x 6' frame, crowfoot throats on first and third of five hoops, 3/4" bar mesh, treated black. One trap net fished overnight equals one unit of trap net effort.

C. Electrofishing

A pulsed D.C. electrofishing boat with boom-mounted electrodes. One hour of current-on electrofishing equals one unit of electrofishing effort.

II. Surveys will be conducted using the following procedures:

A. Effort

Due to the selectivity of individual gear types, a combination of gill netting, trap netting, and electrofishing effort will be used to characterize the fish community. One unit of effort for each of the gear types combined, equals one unit of "sampling effort". The following table provides for the minimum amount of sampling effort and survey time needed for various size waters:

Lake size (acres)	*Units of sampling effort	Nights needed
1-25	1	1
26-100	2	1
101-500	4	1-2
501-1000	6	2
1000+ **	6+	2-3+

\* One unit of "sampling" effort includes a pair of floating and sinking gill nets and one trap net fished overnight and one hour of electrofishing.

\*\* Use best judgement on sampling effort needed to sample various habitat zones.

## JOB PERFORMANCE REPORT

State of : Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

### ABSTRACT

Clearwater Region fishery management personnel snorkeled 118 stream transects within the Clearwater, Salmon, and Snake river drainages to obtain data for the long-term database. Chinook salmon *Onchorhynchus tshawytscha* juvenile numbers continued at low levels throughout the drainages sampled. Fifty-two adult chinook salmon redds were counted in traditional aerial spawning ground counts in the Lochsa and Selway rivers, and 44 were counted in the South Fork Clearwater drainage. Management personnel captured and PIT-tagged 25 white sturgeon *Acipenser transmontanus* from the Snake River and seven from the Salmon River. We collected 284 residualized steelhead *O. mykiss* smolts and three unspecified hatchery rainbow trout from the lower Clearwater River and found no trout originating from fingerling plants. Rainbow trout stocked in the Clearwater River most likely suffered from high emigration losses as a result of a 100-year flood event in February 1996. We collected 53 rainbow trout in an estimated 146 hours of effort on the Salmon River. Residualized hatchery steelhead smolts represented 49% (26/53) of the sample. Stocked fingerling trout accounted for 35.8% (19/53) of the sample. Domestic Kamloops strain rainbow trout outnumbered Spokane strain rainbow trout in the sample 3:1. No fish or fish parts were identified in the stomach contents of 46 hatchery origin trout.

We collected 390 westslope cutthroat trout *O. clarki lewisi* in the mainstem North Fork Clearwater River from Aquarius (rkm 104.4) to Kelly Forks (rkm 184.5) using traditional hook-and-line techniques. We tagged 325 of these cutthroat trout jaw tags. Seven cutthroat trout were reported recaptured, five by anglers and two by sampling personnel. Two of the recaptured fish had moved into different tributaries and were recaptured approximately 18 km from where they were tagged. The other five cutthroat were recaptured within 2.5 km of the tagging location. We counted 2,569 kokanee *O. nerka* in spawner counts in three index tributaries of the North Fork Clearwater River. This represents the second lowest count since trend counts began in 1981. Personnel and conservation officers checked 247 anglers who spent 290 hours to catch 565 game fish from regional rivers and streams; this represents an average catch rate of 1.95 fish per hour.

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## OBJECTIVES

1. Develop long-term fish population database on selected streams throughout the Clearwater Region.
2. PIT tag white sturgeon *Acipenser transmontanus* in the Snake River below Hells Canyon Dam and the Salmon River below Riggins.
3. Assess diet of hatchery rainbow trout *Oncorhynchus mykiss* and residualized hatchery steelhead trout *O. mykiss gairdneri* smolts in the Snake, Salmon, and Clearwater River drainages.
4. Allocate hatchery rainbow trout in regional streams.
5. Collect miscellaneous creel census information from various streams throughout the region.

## SALMONID POPULATION TREND MONITORING

### Methods

We used standard snorkeling techniques to monitor fish densities at established monitoring sites in regional rivers and streams. Snorkeling was conducted in late summer when stream flows were low, clear, and accessible. Small streams were snorkeled upstream with one to three observers depending on stream width. Larger streams and river corridors were snorkeled either upstream or free-floating downstream with four to six observers, depending on corridor width and water depth. Population abundance is presented as fish per 100 m<sup>2</sup>.

We sampled rainbow trout and mountain whitefish *Prosopium williamsoni* in the Clearwater River using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Sampling was conducted from April 8 to August 30 and occurred during daylight hours to avoid safety hazards.

### Results

#### **Selway River**

Juvenile chinook salmon *O. tshawytscha* numbers remained low in the tributaries (Table 1) and mainstem river (Table 2). A total of 22 chinook salmon juveniles were observed in 16 tributary transects above Selway Falls, and zero juvenile chinook salmon were counted in four tributary transects below Selway Falls. In nine mainstem transects, 52 juvenile chinook salmon were observed. No adult chinook salmon were observed in the July and August sampling. Aerial chinook salmon spawning ground counts revealed 11 redds, mostly in the upper reaches of the river (Table 3).

Table 1. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling the Selway River drainage, 1996.

Stream	Date	Steelhead trout					Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm			
Bear Creek, #1, at bridge	8/2	0.62	0	0.55	0.07	0	0.55	0.55	0	0	2.77	0
Bear Creek, #2, upper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E.F. Moose Creek, #3	8/4	0.19	0	0	0.19	0	0.38	0.19	0.19	0	1.31	0
Moose Creek, #1, at mouth	8/3	4.04	0	2.83	1.21	0	0.61	0.54	0.07	0	3.78	0
Moose Creek, #2, at E.F. confluence	8/4	0.21	0.16	0.05	0	0	0.05	0	0.05	0.05	0.16	0
N.F. Moose Creek, #4	8/4	2.82	0.82	1.09	0.91	0	1.54	1.45	0.09	0	3.64	0
Marten Creek	8/6	7.72	0	4.63	3.09	0	0.26	0.26	0	0	0	0
Little Clearwater R., #2, upper	7/31	2.92	0	1.61	1.02	0.29	0.44	0.44	0	0	0	0
Little Clearwater R., #1, lower	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Otter Creek	8/7	2.77	0	0.50	2.02	0.25	2.02	1.01	1.01	0	0	0
Running Creek, #1, lower	8/1	0.93	0.12	0.58	0.23	0	0.12	0.12	0	0	0.12	0
Running Creek, #2, upper	8/1	1.46	0	1.46	0	0	0	0	0	0	0	0
Selway R. at Hell's-Half	7/31	2.38	0	1.39	0.99	0	0.69	0.69	0	0	0.89	0
Selway R. at Little Clearwater	7/31	2.46	0.07	1.48	0.84	0.07	0.35	0.28	0.07	0.21	0.91	0.07
Selway R. at Beaver Pt.	7/31	3.28	0.08	1.72	1.13	0.35	0.14	0.14	0	1.06	0.38	0
Deep Creek, Cactus	7/31	1.67	0.24	0.48	0.95	0	1.91	1.91	0	0	0	0
Deep Creek, Scimitar	7/31	0.75	0	0.19	0.19	0.37	2.60	2.60	0	0	0	0
Three Links Creek	8/6	7.68	0	1.00	6.01	0.67	1.00	0.67	0.33	2.34	0	0
White Cap Creek, #1, lower	7/31	1.80	0.08	0.98	0.66	0.08	1.47	1.47	0	0.25	0.08	0.16
White Cap Creek, #2, middle	7/31	1.04	0	0.52	0.46	0.06	0.40	0.34	0.06	0.06	0.52	0
White Cap Creek, #3, upper	7/31	1.75	0.08	1.00	0.67	0	1.83	1.83	0	0.67	0.92	0.08
Gedney Creek, # 1	7/29	7.48	0.64	3.10	3.42	0.32	0.53	0.21	0.32	0	0.21	0.11
Gedney Creek, # 2	7/29	10.09	0.29	6.34	3.46	0	0	0	0	0	0.29	0
Meadow Creek, # 1 Slims Camp	8/7	3.06	0	1.76	1.21	0.09	0.65	0.65	0	0.19	0.19	0
Meadow Creek, # 2	8/7	0.08	0	0	0.08	0	0.08	0.08	0	0	0.12	0
O=Hara Creek, #1, meadow	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O=Hara Creek, #2, canyon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 2. Number of fish counted in snorkel transects (5 snorkelers) in the unroaded mainstem Selway River, 1992-1996.

Location	Year	Cutthroat trout		Steelhead trout				Chinook salmon	Mountain whitefish	Bull trout
		<305 mm	>305 mm	Age 0	Age 1	Age 2	Age >2			
at Bad Luck Creek	1992	30	14	0	0	0	0	0	106	0
	1993	14	12	9	6	1	0	0	40	0
	1994	10	7	0	0	0	0	20	23	0
	1995	12	4	0	3	0	0	0	68	0
	1996	28	2	0	0	2	2	0	43	0
at North Star Creek	1992	22	2	0	0	0	0	0	56	0
	1993	28	5	0	0	0	0	0	45	0
	1994	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1995	13	5	0	0	0	0	0	46	0
	1996	23	4	0	0	0	0	0	28	0
at Osprey Island	1992	8	8	0	2	0	0	0	32	0
	1993	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1994	15	5	0	6	3	0	0	56	0
	1995	24	8	0	10	4	0	0	59	0
	1996	26	0	0	22	14	0	0	0	0
at Big Bend	1993	13	7	0	0	0	0	0	32	0
	1994	9	2	0	4	0	0	4	31	0
	1995	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1996	ND	ND	ND	ND	ND	ND	ND	ND	ND
at Tango Creek	1992	15	26	0	16	9	0	14	50	0
	1993	28	1	3	32	2	0	0	26	0
	1994	28	8							0
	1995	29	3	0	9	2	1	0	35	0
	1996	19	4	0	1	1	0	0	28	0

Table 3. Chinook salmon spawning ground survey summary in the Selway River drainage, 1996.

Drainage	Reach	Type <sup>a</sup>	Description	Date	Method	Redds	Fish	
							Live	Dead
White Cap Creek	WC-1	T	Mouth to Coopers Flat	9/1	Aerial	0	0	0
Bear Creek	WC-2	T	Mouth to Cub Creek	9/13	Aerial	1	0	0
Moose Creek	WC-3	T	Mouth to Cedar Creek	9/13	Aerial	0	0	0
Running Creek	WC-4	T	Mouth to two miles above Eagle Creek and lower one mile of Eagle Creek	9/13	Aerial	0	0	0
Selway	WC-5	T	Thompson Flat to Magruder RS	9/13	Aerial	0	0	0
Selway	WC-6	T	Magruder RS to Magruder Crossing	9/13	Aerial	0	0	0
Selway	WC-7	T	Magruder Crossing to Little Clearwater River	9/17	Ground	5	2	1
				9/13	Aerial	4	1	0
Selway	WC-8	T	Little Clearwater to White Cap Creek	9/13	Aerial	1	1	0
Selway	WC-9	T	White Cap Creek to Bear Creek	9/13	Aerial	5	2	0
<b>Selway ground total</b>						<b>5</b>	<b>4</b>	<b>1</b>
<b>Selway drainage aerial count total:</b>						<b>14</b>	<b>2</b>	<b>0</b>

<sup>a</sup>T=traditional transect

Two bull trout *Salvelinus confluentus* were observed in White Cap Creek and two were observed in the mainstem during the snorkeling activities in July and August (Table 1).

Table 4 through Table 9 depict historic relative numbers and sizes of cutthroat trout *O. clarki*, steelhead trout, and mountain whitefish observed by snorkeling in mainstem transects.

### **Lochsa River**

Fish densities (per 100 m<sup>2</sup>) as determined by snorkeling 12 transects in the Lochsa River drainage are shown in Table 10. No chinook salmon juveniles were observed in the tributaries surveyed, two were seen in the mainstem. One bull trout was observed in Split Creek.

Chinook salmon aerial spawning ground counts revealed 38 redds in Crooked Fork, Brushy Fork, and White Sand creeks (Table 11).

### **Snake River**

No chinook salmon juveniles or bull trout were observed while snorkeling two Snake River tributaries (Table 12).

### **Salmon River**

Nine tributaries of the lower Salmon River were surveyed by snorkeling in 1996 (Table 13). No juvenile chinook salmon were found. Bull trout were observed only in Bargamin Creek. In addition, four sites in Wind River, eight sites in Sheep Creek, two sites in Bargamin Creek, and one site in Big Mallard Creek were also snorkeled to obtain baseline information (Table 14). Rainbow/steelhead trout densities were high in Wind River, while cutthroat trout predominated transects in Sheep Creek. Larger rainbow trout displayed accentuated cutthroat x rainbow hybrid characteristics, making them look like resident fish.

Table 4. Percent of cutthroat trout by 50.8 mm (2 in.) size groups sampled in the Selway River by angling, 1975-1996.

Length (mm)	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1993	1994	1995	1996
102 to 151	8.7	2.2	8.7	0.8	4.6	2.8	4.2	2.4	12.4	0.1	4.3	2.7	1.5	1.4	1.7
152 to 202	31.3	16.4	20.9	20.7	13.6	19.0	22.2	15.8	14.0	22.7	23.3	13.0	12.6	25.1	23.6
203 to 253	27.0	24.8	24.5	15.7	22.2	25.2	28.2	23.3	25.1	16.5	23.6	20.2	22.3	17.7	28.5
254 to 304	21.0	35.7	27.0	34.1	30.7	31.2	24.7	27.1	24.3	26.2	30.6	36.8	22.8	27.2	24.8
305 to 355	11.2	18.4	17.0	23.2	25.3	18.9	16.8	28.0	21.0	25.7	15.7	22.8	34.0	24.0	17.4
356 to 405	0.8	2.5	1.3	5.1	3.4	2.3	3.8	3.1	3.0	4.7	2.7	4.5	7.4	3.5	4.1
Over 405	0	0	0.6	0.4	0.2	0.6	0	0.3	0.2	0.5	0	0	0	<0.01	0
No. of cutthroat measured	233	238	229	470	352	549	429	322	506	816	301	377	215	283	242



Table 5. Comparison of cutthroat (CT) trout counted in snorkel transects (1 snorkeler) and cutthroat trout caught by angling in the Selway River between White Cap Creek and Race Creek, 1973-1996.

Year	Counted in snorkel transects		Total no. cutthroat measured	Caught by angling	
	Average no. of CT counted/ transect	Percent CT >305 mm in transects		Average CT total length (mm)	Percent CT caught >305 mm
1996	14.2	3.2	242	252	21.5
1995	11.2	3.2	28	254	28
1994	5.9	11	215	272	29
1992	5.4	28	301	251	18
1990	10.5	19	816	259	31
1988	17.1	22	506	249	24
1986	21.5	20	322	264	32
1984	18.3	23	429	249	21
1982	16.1	16	549	254	22
1980	17.0	14	352	264	29
1978	13.0	19	470	262	27
1977 <sup>a</sup>	15.4	20	229	241	19
1976	7.1	21	238	259	22
1975	5.7	13	233	239	12
1974	5.5	10	--	--	--
1973	4.4	18	--	--	--

<sup>a</sup> Extremely low flows

Table 6. Percent of cutthroat trout over 305 mm (12 in) counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1996.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995	1996
White Cap Creek to Running Creek	9.5	16.7	11.8	22.2	22.6	16.2	13.2	8.9	15.9	21.3	24.5	29.6	6.7	6.7	0	0
Running Creek to Bear Creek	11.1	8.3	18.2	16.2	21.5	20.8	11.8	10.7	20.7	14.6	22.4	15.9	25.5	11.1	0	0
Bear Creek to Moose Creek	34.4	15.5	8.0	25.0	25.0	21.4	9.9	15.0	22.7	18.7	22.9	16.2	48.4	12.1	9.1	0
Weighted means: White Cap Creek to Moose Creek	18.9	12.7	13.0	20.6	21.8	22.3	11.5	12.0	20.6	17.8	23.2	15.6	32.9	10.8	0.8	0
Moose Creek to Halfway Creek	8.3	--	3.6	17.5	12.5	13.6	18.6	17.9	22.1	22.7	21.6	9.5	9.1	--	10.9	0
Halfway Creek to Three Links Creek	19.0	16.2	19.0	26.3	17.5	15.9	17.2	23.8	26.1	22.7	26.7	33.0	6.7	0	0	20
Three Links Creek to Jim's Creek	23.3	5.8	12.5	38.5	27.5	25.0	17.3	22.3	28.4	24.0	23.7	16.3	11.1	0	0	10
Jim's Creek to Race Creek	--	10.0	50.0	1.8	26.5	35.7	4.1	11.1	30.4	15.5	13.6	46.7	50.0	--	0	ND
Weighted means: Moose Creek to Race Creek	17.3	8.0	13.0	21.3	18.9	19.4	17.6	19.9	29.7	21.9	21.0	19.6	18.2	0	7.1	13.5

Table 7. Average number of cutthroat trout counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1996.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995	1996
White Cap Creek to Running Creek	4.2	3.4	6.8	7.2	10.8	7.4	13.2	11.2	11.0	15.2	13.3	6.8	4.8	7.5	13.0	10.7
Running Creek to Bear Creek	7.2	4.8	6.6	6.2	18.6	10.6	18.6	11.2	17.4	19.2	11.6	16.4	9.4	9.0	13.3	15.5
Bear Creek to Moose Creek	5.3	7.5	5.0	6.0	17.4	19.6	16.0	16.2	19.4	21.4	21.8	7.4	6.2	8.3	13.3	15.0
Weighted means: White Cap Creek to Moose Creek	5.6	5.2	6.1	6.5	15.4	12.5	16.2	12.8	16.3	18.8	15.7	10.4	6.9	8.3	13.2	13.6
Moose Creek to Halfway Creek	6.0	9.0	5.6	8.0	24.0	19.7	14.3	19.5	28.3	21.7	18.5	10.5	3.7	--	12.0	7.0
Halfway Creek to Three Links Creek	3.0	7.4	7.0	9.5	20.0	22.0	29.0	21.0	23.0	32.5	30.0	3.0	5.0	3.0	0.0	10.0
Three Links Creek to Jim's Creek	5.0	4.3	8.0	6.5	11.0	16.0	22.0	23.5	18.5	34.7	20.0	12.3	3.0	6.0	5.7	30.0
Jim's Creek to Race Creek	--	2.5	1.2	5.7	7.5	3.5	12.3	18.0	14.0	14.5	14.8	11.0	3.0	--	7.0	nd
Weighted means: Moose Creek to Race Creek	3.6	5.9	5.3	7.4	15.3	13.8	18.0	21.1	20.5	24.3	18.7	9.9	3.7	4.5	8.8	15.6

Table 8. Average number of juvenile steelhead trout (<8 inches) counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1996.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995	1996
White Cap Creek to Running Creek	1.2	1.1	5.0	4.0	0.8	3.6	5.0	7.4	10.5	5.5	3.8	4.0	3.7	3.8	9.3	11.6
Running Creek to Bear Creek	3.2	7.0	2.2	2.0	0.8	3.4	6.0	14.4	3.8	4.4	4.0	2.2	2.4	1.8	2.0	7.8
Bear Creek to Moose Creek	4.3	3.7	11.0	13.0	3.3	3.4	9.0	19.8	17.2	11.8	18.2	15.6	7.6	10.0	8.3	19.0
Weighted means: White Cap Creek to Moose Creek	2.7	2.6	7.7	5.7	1.9	2.6	5.9	11.1	14.3	7.1	9.1	8.4	4.7	5.2	6.6	10.6
Moose Creek to Halfway Creek	27.5	17.8	17.8	13.2	5.3	22.0	9.7	40.3	43.8	23.7	22.5	34.3	1.7	--	16.0	4.0
Halfway Creek to Three Links Creek	14.0	17.4	25.3	19.5	9.5	12.0	19.0	28.0	31.0	21.0	35.0	42.0	9.3	3.0	0.0	26.0
Three Links Creek to Jim's Creek	19.3	8.8	32.5	23.5	24.7	18.7	18.9	24.2	26.7	28.7	31.8	41.0	2.3	26.0	8.7	34.0
Jim's Creek to Race Creek	6.2	6.7	4.3	10.5	5.8	9.8	10.0	13.0	15.0	12.3	3.3	1.8	0.7	--	14.0	ND
Weighted means: Moose Creek to Race Creek	12.8	19.2	13.8	12.0	14.9	13.5	29.6	28.1	21.6	23.2	22.5	15.8	3.5	14.5	13.0	21.33

Table 9. Average number of mountain whitefish counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1996.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995	1996
White Cap Creek to Running Creek	35.2	31.1	8.4	17.8	32.8	9.4	15.8	18.8	23.2	22.2	17.3	22.8	15.0	20.5	12.0	13.0
Running Creek to Bear Creek	39.2	36.4	15.0	6.5	77.8	17.4	17.6	21.2	37.4	30.6	24.2	36.8	45.4	55.5	33.3	14.5
Bear Creek to Moose Creek	31.1	34.2	11.8	9.0	51.3	16.6	19.0	30.2	44.2	31.6	29.6	10.2	13.8	20.0	15.3	25.0
<u>Weighted means:</u>																
White Cap Creek to Moose Creek	34.9	33.9	11.7	10.9	44.9	12.1	17.6	23.4	35.8	28.6	24.1	21.7	25.4	32.0	17.9	15.25
Moose Creek to Halfway Creek	48.8	31.5	32.4	16.6	69.5	40.3	32.0	43.8	46.2	41.0	44.7	47.3	12.0	--	42.8	31.0
Halfway Creek to Three Links Creek	17.7	31.4	27.0	16.0	65.0	67.0	27.0	47.0	60.0	38.5	70.0	12.0	10.0	19.0	0.0	7.0
Three Links Creek to Jim's Creek	23.8	19.0	41.0	19.5	49.7	46.0	38.3	59.0	50.0	50.7	35.0	27.3	9.0	5.0	11.0	17.0
Jim's Creek to Race Creek	5.2	16.8	18.7	2.0	41.0	20.5	20.0	21.0	32.5	19.7	22.3	8.8	9.0	--	5.0	ND
<u>Weighted means:</u>																
Moose Creek to Race Creek	23.0	21.5	29.3	13.3	50.4	39.6	28.8	47.9	44.2	35.9	36.8	26.5	13.1	12.0	26.1	18.3

Table 10. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Lochsa River drainage, 1996.

Stream	Date	Steelhead trout					Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm			
Fire Creek, lower		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fire Creek, upper		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fish Creek, lower	7/15	13.40	7.82	1.61	3.11	0.86	0.32	0.32	0	0	0.11	0
Fish Creek, upper	7/15	11.51	2.60	3.09	5.45	0.37	0	0	0	0	0.12	0
Lochsa River, #4 at Papoose Creek	8/8	0.28	0.02	0.16	0.06	0.04	0.71	0.47	0.24	0	0.51	0
Lochsa River, #3 at Warm Springs	8/8	0.18	0.01	0.03	0.07	0.07	0.34	0.16	0.18	0	0.44	0
Lochsa River #1 at Fish Creek	8/8	0.12	0.04	0.07	0.01	0	0.13	0.07	0.06	0.03	0.20	0
Lochsa River at Pete King Creek	8/7	0.003	0	0	0.003	0	0.023	0.003	0.02	0	0.07	0
Old Man Creek	8/10	20.82	0	15.38	4.99	0	0.83	0.83	0	0	0	0
Split Creek, #1, lower	8/10	4.64	0.26	2.32	2.06	0	0	0	0	0	0	0
Split Creek, #2, upper	8/10	5.35	0	1.63	2.79	0.93	0.70	0.70	0	0	0.93	0.23
Warm Springs Creek	8/9	3.36	0	2.08	1.28	0	2.56	1.92	0.64	0	0	0
Post Office Creek, #1, lower	8/9	2.21	0	1.66	0.55	0	10.52	10.52	0	0	0	0
Post Office Creek, #2, upper	8/9	6.55	0	6.55	0	0	13.11	13.11	0	0	0	0

Table 11. Chinook salmon redd counts on tributaries of the upper Lochsa River, 1996.

Drainage	Reach	Type <sup>a</sup>	Description	Date	Method	Redds	Fish	
							Live	Dead
Crooked Fork	NC-9	NT	Mouth to Hopeful Creek	9/14	Aerial	31	0	0
	NC-10	T	Rock Creek to Cliff hole	9/6	Ground	22	3	3
Brushy Fork	NC-11	T	Low Gap Bridge to one mile downstream	9/4	Ground	0	0	0
	NC-12	T	Mouth to Spruce Creek	9/14	Aerial	6	0	0
White Sands	NC-13	NT	Mouth to Big Flat Creek	9/14	Aerial	1	0	0
Lochsa Drainage Aerial Total						38		
Lochsa Drainage Ground Total						22		

<sup>a</sup>NT = non-traditional transect, T = traditional transect

Table 12. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Snake River drainage, 1996.

Stream	Date	Steelhead trout					Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm			
Granite Creek, #1 lower	8/26	15.81	4.92	5.27	3.51	2.11	0	0	0	0	0	0
Granite Creek, #2 middle		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Granite Creek, #3 upper	8/26	19.18	0.41	6.12	8.57	4.08	0.41	0.41	0	0	0	0
Sheep Creek, #1 lower	8/25	17.65	2.42	4.84	6.58	3.81	0	0	0	0	0	0
Sheep Creek, #2 upper	8/25	13.47	4.10	6.44	2.34	0.59	0	0	0	0	0	0



Table 13. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the lower Salmon River drainage, 1996.

Sm,tream	Date	Steelhead trout					Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm			
Crooked Creek, #1, lower	7/29	5.18	2.81	1.94	0.32	0.11	0.65	0.54	0.11	0	0.65	0
Crooked Creek, #2, upper	7/29	3.16	0.25	2.40	0.51	0	1.14	1.14	0	0	1.26	0
Bargamin Creek, #1, lower	7/30	4.33	0.70	2.69	0.82	0.12	0.82	0.70	0.12	0.12	0.70	0.12
Bargamin Creek, #2, upper	7/30	5.51	0.47	3.46	1.42	0.16	0.63	0.63	0	0	0.79	0.16
Jersey Creek	7/30	19.23	0.00	15.84	3.39	0	0	0	0	0	0	0
John Day Creek, #1, lower	7/22	6.48	0	2.88	3.60	0	0	0	0	0	0	0
John Day Creek, #2, upper	7/22	2.74	0	2.74	0	0	0	0	0	0	0	0
Race Creek	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sheep Creek, #1, lower	7/28	17.65	2.42	4.84	6.58	3.81	0	0	0	0	0	0
Sheep Creek, #2, upper	8/21	13.46	4.10	6.44	2.34	0.58	0	0	0	0	0	0
Skookumchuck Creek, #1, lower	7/22	3.42	1.14	0.57	1.14	0.57	0	0	0	0	0	0
Skookumchuck Creek, #2, upper	7/22	4.41	0	0.63	2.52	1.26	0	0	0	0	0	0
S.F. White Bird Creek, #3, upper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
White Bird Creek, #1	7/22	22.87	1.69	19.77	1.41	0	0.28	0.28	0	0	0	0

Table 14. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Lower Salmon River drainage, 1996

Stream	Date	Steelhead trout						Cutthroat trout			CTxRB hybrid	Chinook salmon	Mountain whitefish	Bull trout
		Area	Total	Age 0	Age 1	Age 2	Age>2	Total	<305 mm	>305 mm				
Bargamin Creek, #3	7/30	855	6.08	0.35	3.39	2.34	0	0.70	0.58	0.12	0	0	0.94	0
Bargamin Creek, #4	7/30	734	5.99	0.27	4.36	1.23	0.14	0.55	0.55	0	0	0	0.95	0
Big Mallard Creek, mouth	7/30	346	6.34	0.58	3.47	2.31	0	0.29	0.29	0	0	0	0.58	0
Sheep Creek, #2	8/21	509	0.19	0	0.19	0	0	3.34	3.34	0	0	0	0.59	0
Sheep Creek, #3	8/21	572	0.70	0	0	0.35	0.35	3.67	3.32	0.35	0	0	0	0
Sheep Creek, #4	8/21	679	1.18	0	0	1.18	0	6.63	6.63	0	0	0	0	0
Sheep Creek, #5	8/21	557	1.62	0	0	1.62	0	2.87	2.87	0	0	0.18	0	0
Sheep Creek, #6	8/21	249	0.40	0	0	0.40	0	8.83	8.83	0	0	0	0	0
Sheep Creek, #7	8/20	393	2.80	0	1.02	1.53	0.25	3.05	3.05	0	0	0	0	0
Sheep Creek, #8	8/20	270	2.96	0	0.74	1.48	0.74	6.67	6.67	0	0	0	0	0
Sheep Creek, #9	8/20	371	5.12	0	1.89	2.70	0.54	6.47	6.47	0	0	0	0	0
Wind River, #1	7/28	49	20.40	0	4.08	14.29	2.04	2.04	2.04	0	2.04	0	0	0
Wind River, #2	7/28	126	14.29	0	7.94	6.35	0	2.38	1.59	0.79	1.59	0.79	0	0.79
Wind River, #3	7/28	343	6.41	0	1.75	3.79	0.87	2.62	2.62	0	1.17	0	1.75	0
Wind River, #4	7/28	619	9.53	0.16	4.04	4.20	1.13	3.72	3.39	0.32	0	0	0	0

## **North Fork Clearwater River**

Fisheries management personnel snorkeled 10 streams in this drainage as a continuation of surveys initiated in 1993. Rainbow trout were the most abundant fish observed (Table 15). Bull trout were found only in Isabella Creek.

Clearwater Region Fisheries personnel and volunteers collected 390 westslope cutthroat trout in the mainstem North Fork Clearwater River from Aquarius (rkm 104.4) up to Kelly Forks (rkm 184.5) using traditional hook-and-line techniques. We sampled on June 25 and 26, July 23 and 24, and September 21. We tagged 325 of these cutthroat with numbered size 6 and 8 metal jaw tags. We recorded date, tag number, tagging location (rkm), and total length of fish (Figures 1-4).

Seven cutthroat trout were reported recaptured, five by anglers and two by sampling personnel. Two of the recaptured fish had moved into different tributaries and were recaptured approximately 18 km from where they were tagged. The other five cutthroat were recaptured within 2.5 km of the tagging location.

## **Clearwater River**

Four tributaries were snorkeled in the drainage. Steelhead trout were the most abundant species observed (Table 16). Flooding during the spring of 1996 extensively altered Mission and Big Canyon creeks. The only fish observed in Big Canyon Creek was one steelhead fry.

One hundred sixty-four wild rainbow trout were captured while electrofishing in the mainstem (Figure 5). These fish ranged in size from 100 to 480 mm total length. Most of the fish were captured during July and August.

Mountain whitefish were collected by electrofishing during April-August in the lower Clearwater River (Figure 6). These fish ranged in size from 100 to 530 mm total length.

## **South Fork Clearwater River**

Ten chinook salmon juveniles were observed while snorkeling in 20 transects on six streams in the South Fork Clearwater River drainage (Table 17). Bull trout were observed in Red River and Ten Mile Creek. Forty-eight chinook salmon redds were counted in traditional aerial surveys in the South Fork Clearwater drainage (Table 18).

Table 15. Summary of snorkeling observations (fish/100 m<sup>2</sup>) in North Fork Clearwater River drainage, 1994-1996.

Stream – Year	Area (m²)	Age 0	Rainbow Trout			Cutthroat		Bull trout	Mountain whitefish	Brook trout
			Age 1	Age 2	Age >2	<305 mm	>305 mm			
Beaver Creek #1										
1994	156	0	7.70	1.93	0	0	0	0	0	0
1995	236	6.36	2.54	0.42	0	0	0	0	0	0
1996	331	2.42	2.72	2.42	3.02	0	0	0	0	0
Beaver Creek #2										
1994	324	0	2.47	1.24	0	0	0	0	0	0
1995	236	0	0	0	0	0	0	0	0	0
1996	231	0	0.87	0.43	0	0	0	0	0	0
Collin's Creek #1										
1994	226	0	2.65	2.65	0	0	0	0	0	0
1995	265	9.43	2.64	1.89	0	0	0	0	0	0
1996	296	1.35	2.70	2.36	0.68	0.68	0	0	0	0
Collin's Creek #2										
1994	186	0	7.52	2.14	0	0	0	0	0	0
1995	312	0.96	1.28	1.92	0	0	0	0	0	0
1996	339	2.95	5.61	2.66	2.36	0	0	0	0	0
Collin's Creek #3										
1994	156	0	7.70	1.93	0	0	0	0	0	0
1995	236	6.36	2.54	0.42	0	0	0	0	0	0
1996	331	2.42	2.72	2.42	3.02	0	0	0	0	0
French Creek #1										
1994	171	0	0.58	0	0	0	0	0	0	0
1995	210	0	2.38	0	0.48	0	0	0	0	0
1996	198	0.50	0	0	0	0	0	0	0	0
French Creek #2										
1994	79	0	0	3.78	0	0	0	0	0	0
1995	109	0	2.74	0.91	0	0.91	0	0	0	0
French Creek #3										
1994	90	0	0	3.34	0	0	0	0	0	0
1995	79	0	2.53	1.26	0	3.79	0	0	0	0
1996	78	5.10	0	0	0	0	0	0	0	0

Table 15. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout				Cutthroat		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	Age >2	<305 mm	>305 mm			
Hemlock Creek #1										
1994	145	0	3.46	1.38	0	0	0	0	0	0
1995	161	0	3.10	1.24	0	1.24	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hemlock Creek #2										
1994	60	0	1.67	1.67	0	0	0	0	0	0
1995	206	0	0.97	0.49	0	4.37	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hemlock Creek #3										
1994	141	0	8.53	2.13	0.71	0	0.71	0	0	0
1995	138	1.45	2.90	0	2.90	1.45	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hemlock Creek L										
1993	107	0	8.39	4.66	0	0.93	0.93	0	1.86	0
1994	48	0	8.29	20.7	2.07	0	0	0	0	0
1995	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isabella Creek #1										
1994	109	0	11.91	5.50	0	0	0	0	0	0
1995	131	1.53	3.05	0	0	0	0	0.76	0	0
1996	ND	ND	ND	ND	ND	ND	ND	NDN	DN	ND
Isabella Creek #2										
1994	100	1.00	7.02	4.01	0	0	0	0	0	0
1995	90	5.56	2.22	0	0	2.22	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isabella Creek #3										
1994	40	0	12.64	0	0	0	0	0	0	0
1995	98	7.14	22.45	4.08	0	0	0	1.02	1.02	0
1996	44	2.30	0	2.30	0	0	0	2.30	2.30	0
Isabella Creek #4										
1994	99	0	6.06	3.03	1.01	0	2.02	0	0	0
1995	202	1.98	43.56	0	0	0	0	0	0	0
1996	68	2.95	8.86	4.43	2.95	0	0	0	0	

Table 15. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout				Cutthroat		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	Age >2	<305 mm	>305 mm			
Little Moose Creek #1										
1994	181	0	2.21	3.32	0.55	0	0	0	0	0
1995	280	0	0.71	1.43	0.71	0.71	0	0	0	0
1996	222	0.45	0.90	0	0	0	0.45	0	0	0
Little Moose Creek #2										
1994	191	0	2.09	2.62	0	0	0	0	0	0
1995	124	0	4.00	0.80	0	2.40	0	0	0	0
1996	237	0	0	0.84	0	1.26	0	0	0	0
Little Moose Creek #3										
1994	122	0	2.47	4.12	0	0	0.82	0	0	0
1995	125	0	0	0	0	8.79	0	0	0	0
1996	135	0	4.45	7.41	0	11.12	0	0	0	0
Little Weitas Creek - L										
1993	180	3.34	3.34	0	0	0.56	0	0	0	0
1994	152	5.26	1.31	0	0	0.66	0	0	0	0
1995	193	1.03	1.04	1.04	0	0	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Little Weitas Creek – U										
1993	205	0.49	5.37	0	1.47	1.47	0	0	0	0
1994	173	4.62	1.15	1.73	0	0	0	0	0	0
1995	191	0	0	0	0	0	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Middle Creek #1										
1994	169	0	12.99	5.90	0	3.54	0	0	0	0
1995	179	0	0	0	0	1.67	0	0	0	0
1996	189	0	0	0	0	1.06	0	0	0	0

Table 15. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout				Cutthroat		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	Age >2	<305 mm	>305 mm			
Middle Creek #2										
1994	123	0	4.88	0.81	0	0	0	0	0	0
1995	120	0	1.68	0	0	5.85	0	0	0	0
1996	126	0	0.79	0.79	0	9.51	0	0	0	0
Middle Creek #3										
1994	70	1.42	5.70	2.85	0	0	0	0	0	0
1995	30	0	10.12	0	0	16.86	0	0	0	0
1996	84	0	2.38	0	0	0	0	0	0	0
Middle Creek - L										
1993	58	0	5.19	0	0	1.73	0	0	0	0
1994	83	0	0	0	0	0	0	0	0	0
1995	80	0	0	0	0	2.51	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Middle Creek - U										
1994	78	2.56	2.56	0	0	0	0	0	0	0
1995	94	1.07	0	0	0	0	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Orogrande Creek #1										
1994	111	0	0	0	0	0	0	0.90	0	0
1995	99	0	0	0.21	0	0	0	0	0	0
1996	160	0	0	0	0	0	0	0	0	0
Orogrande Creek #2										
1994	162	0	3.09	0	0	0	0	0.62	0.62	0
1995	73	2.75	2.75	0	1.38	0	0	0	0	0
1996	112	0	1.78	0	0	0.89	0	0	0	0.89
Orogrande Creek #3										
1994	184	0	0.54	0	0	0	0	0	0	0
1995	58	0	1.73	0	0	0	0	0	0	0
1996	90	0	0	0	0	0	0	0	0	1.11

Table 15. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout				Cutthroat		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	Age >2	<305 mm	>305 mm			
Quartz Creek #1										
1994	142	1.41	2.11	0	0	0	0	0	0	0
1995	140	1.43	1.43	1.43	0	0	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Quartz Creek #2										
1994	144	0.70	6.27	1.39	0	0	0	0	0	0
1995	136	2.21	4.41	0	0	0	0	0	0	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ruby Creek										
1994	74	1.36	1.36	0	0	0	0	0	0	0
1995	62	1.60	6.42	0	0	0	0	0	0	0
1996	62	4.87	11.36	0	0	3.25	0	0	0	0
Skull Creek #1										
1994	277	0.36	5.78	2.88	0	0	0.36	0	0	0
1995	332	0.90	5.12	0.30	0	0.60	0	0	0	0
1996	341	1.47	2.35	2.05	0.88	0.88	0	0	0.88	0
Skull Creek #2										
1994	346	1.16	2.60	2.30	0	0	0	0	0	0
1995	487	0.21	2.67	0.41	0	0.62	0	0	0	0
1996	358	0.84	1.40	1.40	0.56	0.56	0	0	0.28	0
Skull Creek #3										
1994	426	0.94	3.05	2.82	0	0.70	0.94	0.70	3.52	0
1995	369	0.81	5.15	0.81	0.54	0.54	0	0	1.63	0
1996	392	5.11	6.39	3.32	1.02	0	0	0	3.32	0
Skull Creek #4										
1994	576	0.35	0.69	1.91	0.35	0	1.04	0	1.56	0
1995	977	1.33	1.13	0.10	0	0.61	0	0	1.74	0
1996	502	0	0	0	0	0	0	0	0.20	0
Weitas Creek - lower										
1993	1,380	0	0.07	0	0	0.07	0	0	0.02	0
1994	1,734	0	0.23	0.12	0.06	0	0	0	0.06	0
1995	1,895	0	0	0.26	0.16	0.37	0.11	0	0.69	0



1996 ND ND ND ND ND | ND ND ND ND ND  
Table 15. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout				Cutthroat		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	Age >2	<305 mm	>305 mm			
Weitas - upper										
1993	634	0	1.26	0.16	0.95	0.47	0	0	9.77	0
1994	4423	0	0	0	0	0	5.42	0	12.18	0
1995	541	0	0.56	0	0	0.92	1.48	0.37	24.01	0
1996	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1994	171	0	0.58	0	0	0	0	0	0	0
1995	210	0	2.38	0	0.48	0	0	0	0	0
1996	198	0.50	0	0	0	0	0	0	0	0

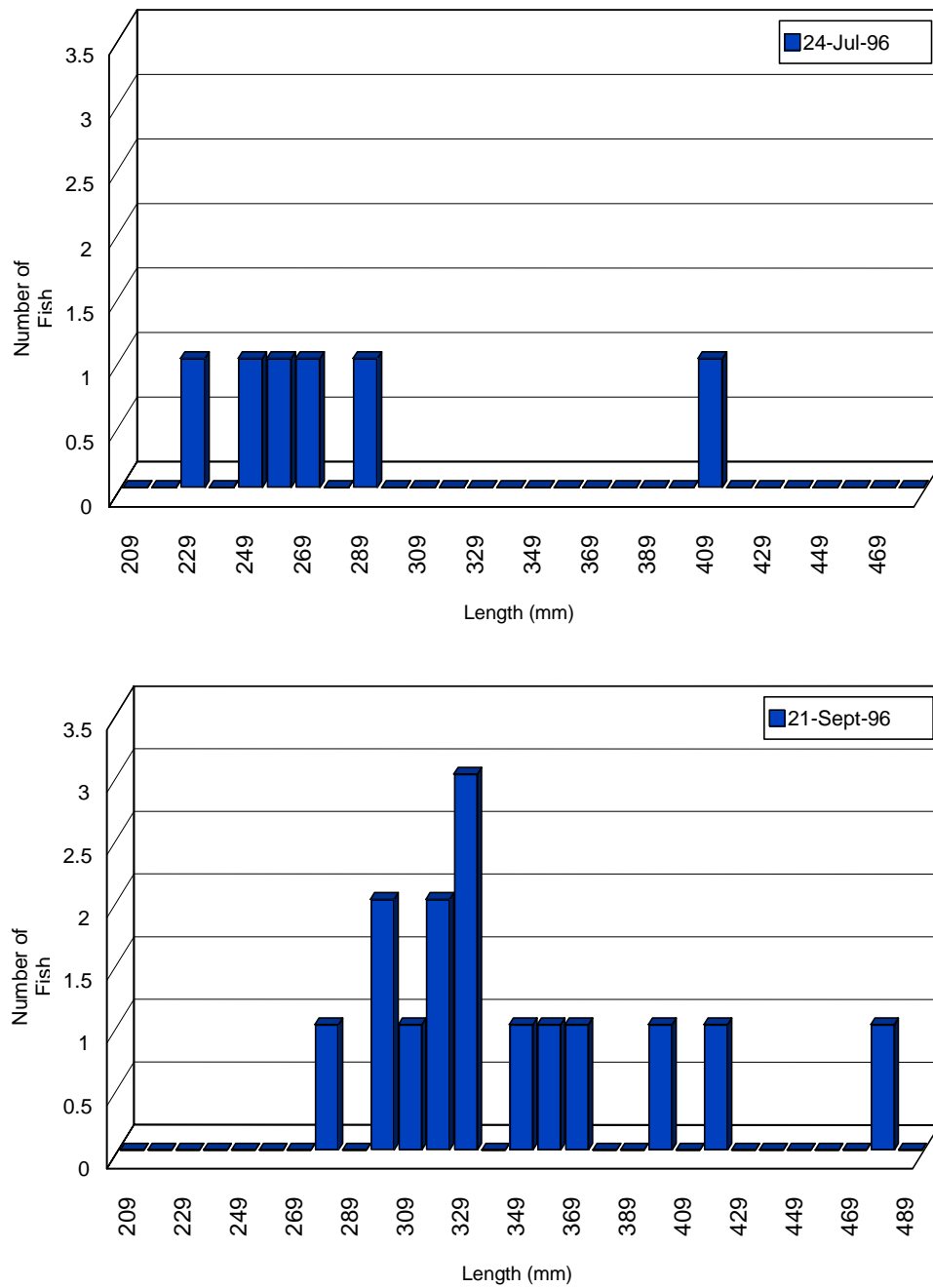


Figure 1. Total length frequency of westslope cutthroat trout in Reach 1 (rkm 91 - 108) for the North Fork Clearwater River, 1996.

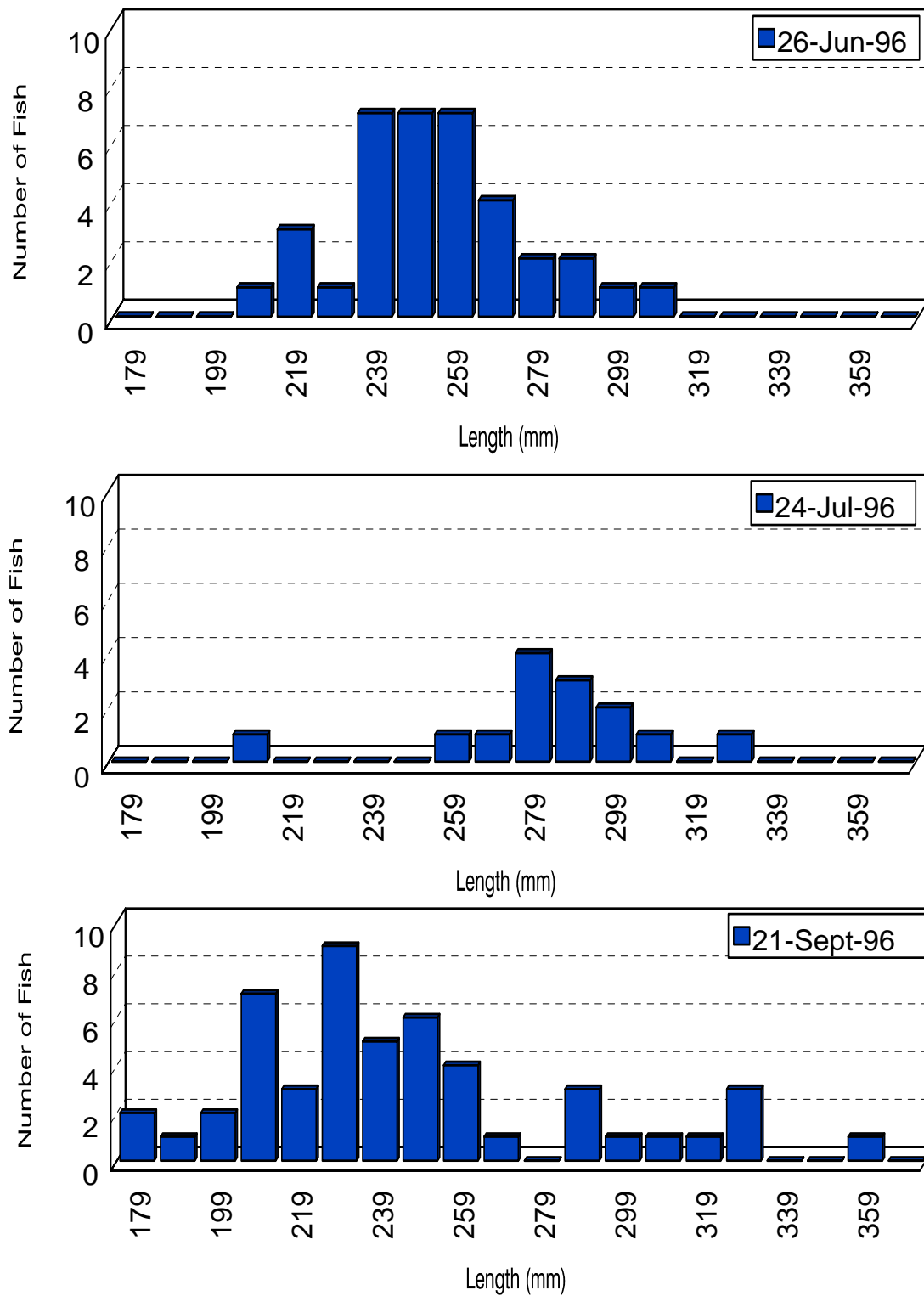


Figure 2. Total length frequency of westslope cutthroat trout in Reach 2 (rkm 109 - 125) for the North Fork Clearwater River, 1996.

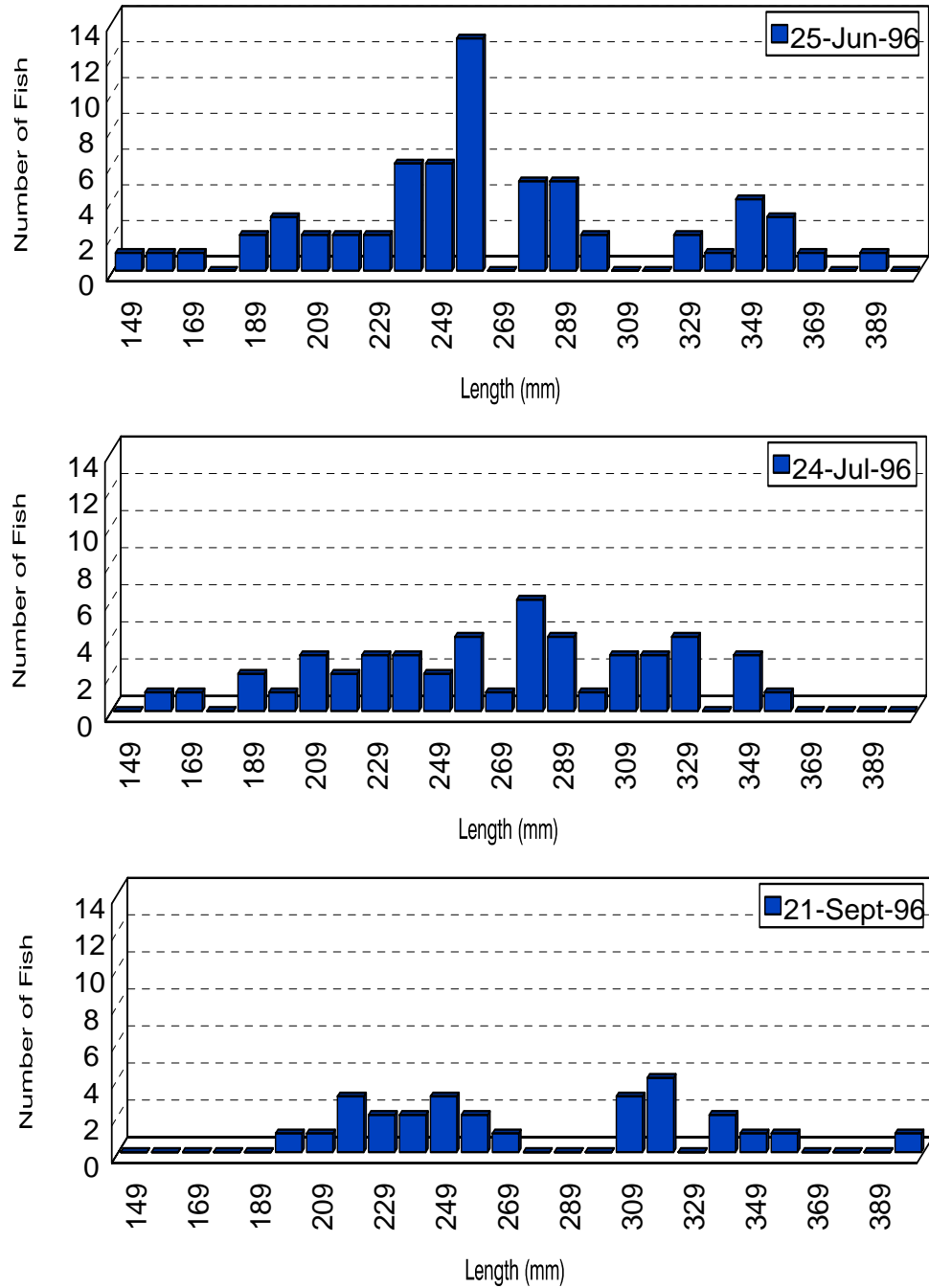


Figure 3. Total length frequency of westslope cutthroat trout in Reach 3 (rkm 126 - 143) for the North Fork Clearwater River, 1996.

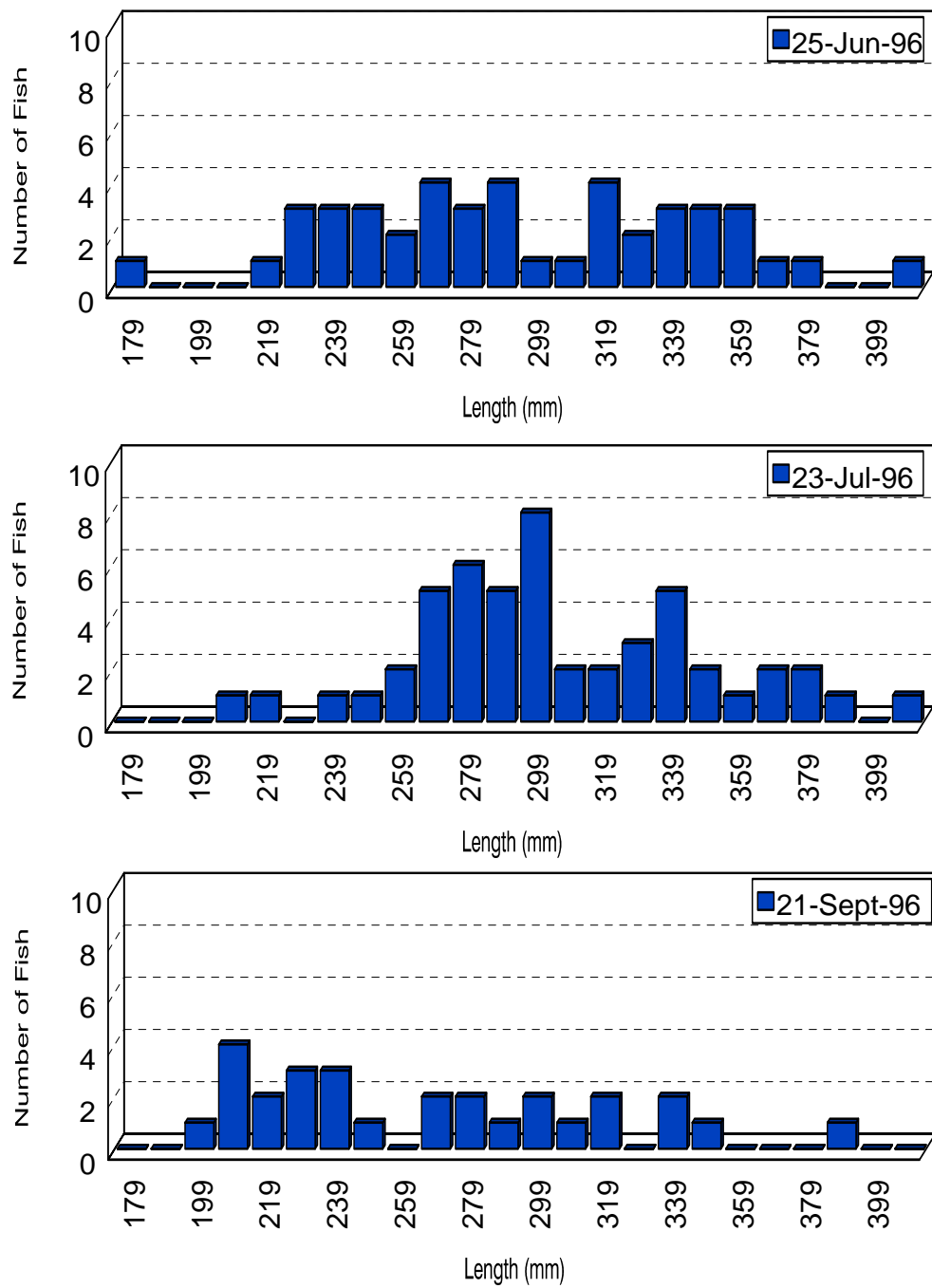


Figure 4. Total length frequency of westslope cutthroat trout in Reach 4 (rkm 143 - 165) for the North Fork Clearwater River, 1996.

Table 16. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the lower Clearwater River drainage, 1996.

Stream	Date	Steelhead trout					Cutthroat trout			Smallmouth bass	Mountain whitefish	Brook trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm			
Big Canyon Creek, #1, bridge	7/3	0.20	0.20	0	0	0	0	0	0	0	0	0
E.F. Potlatch River, #1, lower	7/2	1.98	0.22	0.88	0.44	0.44	0	0	0	0	0	0
E.F. Potlatch River, #2, middle	7/2	0.91	0	0.52	0.39	0	0	0	0	0	0	0.13
E.F. Potlatch River, #3, upper	7/2	11.94	0	10.15	1.79	0	0	0	0	0	0	5.97
Potlatch River, Kendrick	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potlatch River, #1, upper	7/2	2.03	0.71	0.55	0.77	0	0	0	0	0	0	0
Mission Creek, #1	7/3	2.48	1.98	0	0.50	0	0	0	0	0	0	2.48
Mission Creek, #2	7/3	0.61	0.41	0	0	0.20	0	0	0	0	0	0

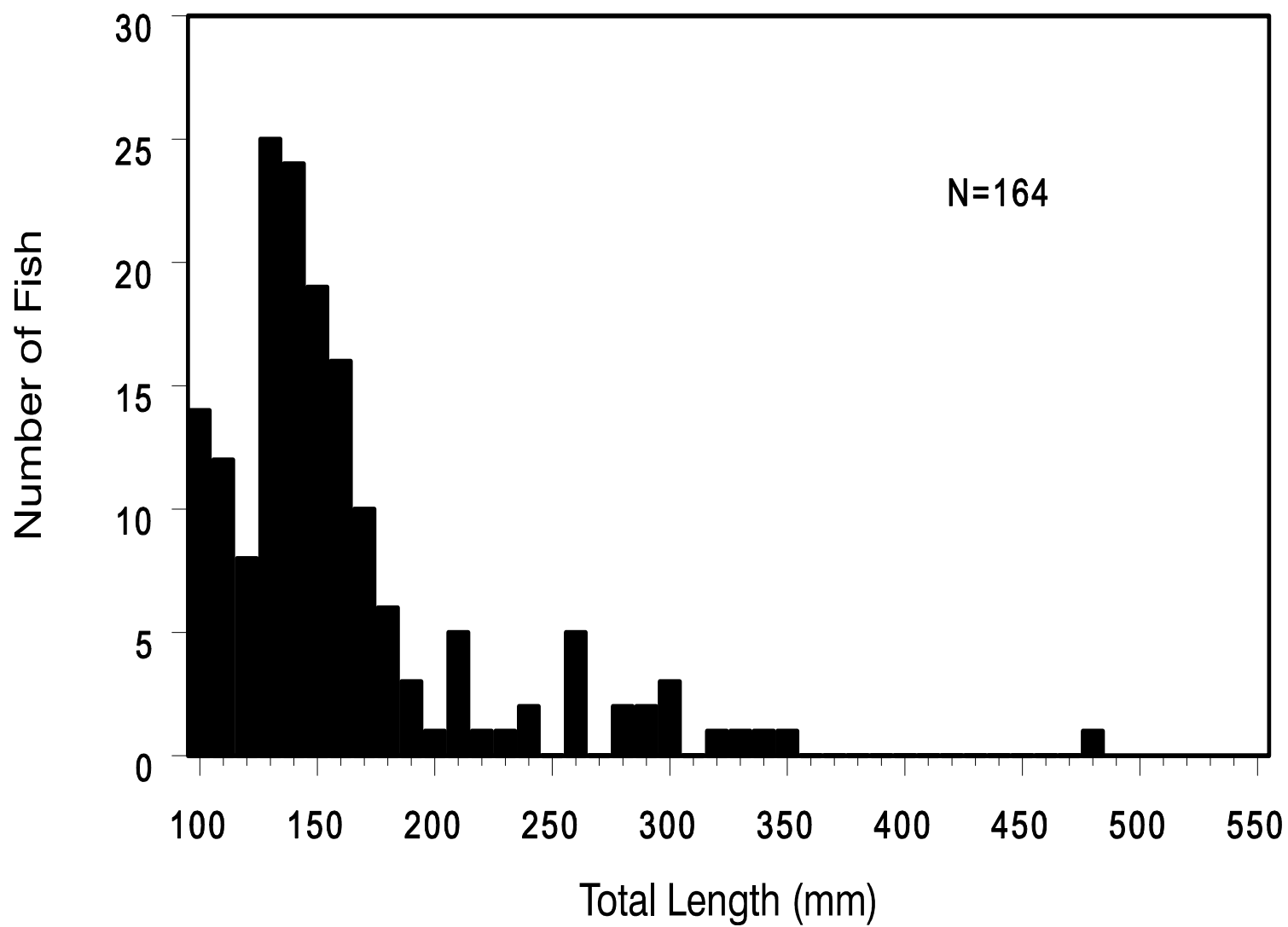


Figure 5. Length frequency of wild rainbow trout electrofished in the North Fork Clearwater River below Dworshak Dam and the Clearwater River below Orofino, April 8 - August 30, 1996.

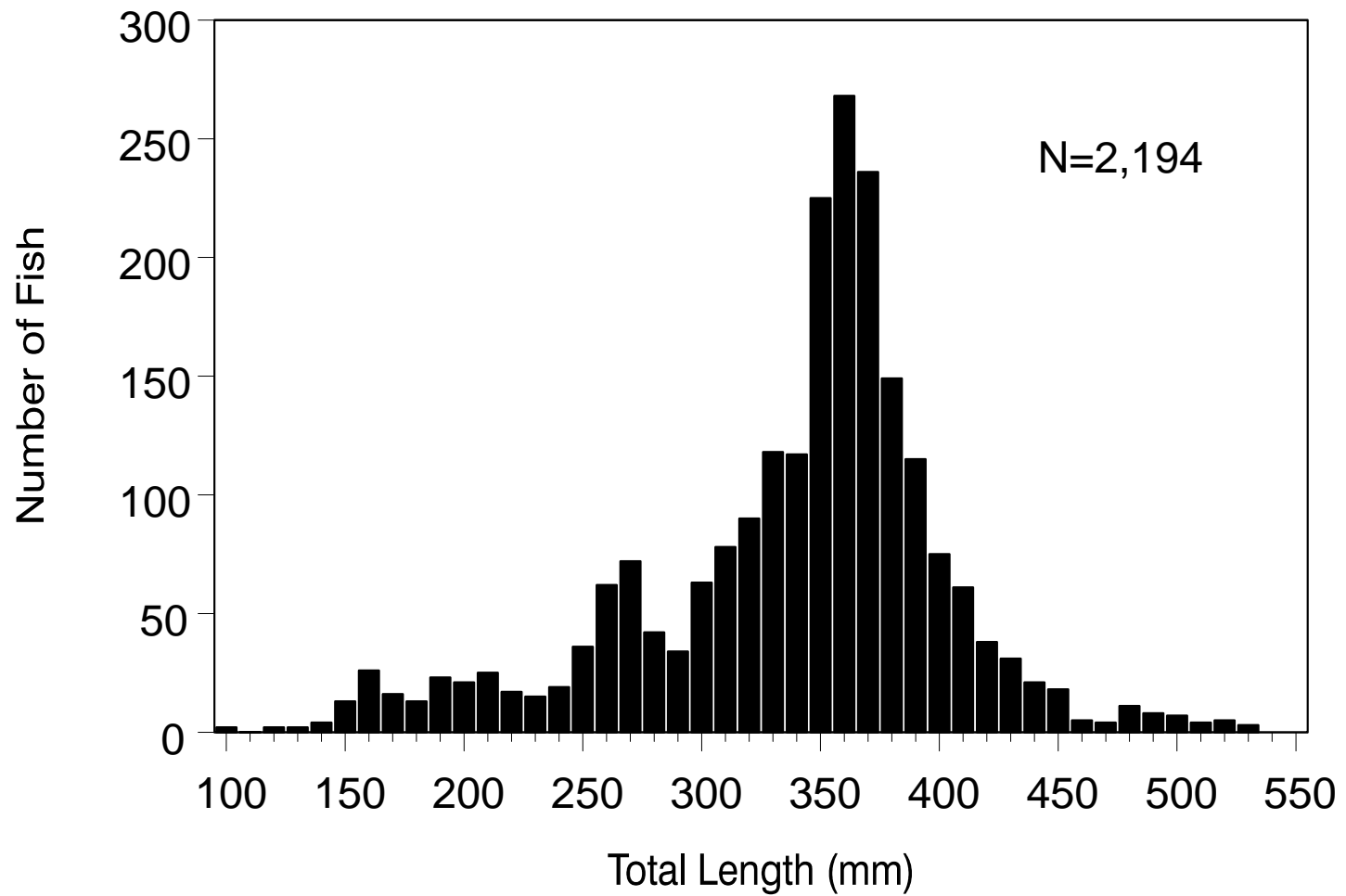


Figure 6. Length frequency of mountain whitefish electrofished in the North Fork Clearwater River below Dworshak Dam and the Clearwater River below Orofino, April 8 - August 30, 1996.



Table 17. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the South Fork Clearwater River drainage, 1996.

Stream	Date	-----Steelhead trout-----					Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout	Brook trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm				
American River, Strata 2, #1	7/13	0.28	0	0.28	0	0	1.41	1.41	0	0	0	0	0
American River, Strata 3, #2	7/13	2.17	0	1.88	0.29	0	1.59	1.59	0	0	0.58	0	0
Meadow Creek, #1, MP2	7/18	0.75	0	0.75	0	0	0	0	0	0	0	0	0
Meadow Creek, #2, meadow	7/18	2.61	0	0.87	1.45	0.29	0.29	0.29	0	0	0	0	10.74
Red River, Strata1 control 1	7/14	0	0	0	0	0	0	0	0	0.37	1.85	0.37	14.09
Red River, Strata1 control 2	7/14	2.50	0.36	1.78	0.36	0	1.78	1.78	0	0	1.78	0	1.43
Red River, Strata 2 control 2	7/15	0	0	0	0	0	1.43	1.43	0	0	0.48	0	0
Red River, Strata 2 treat 2	7/15	0.63	0	0.21	0.42	0	1.66	1.66	0	0	0.21	0	0.42
Red River, Strata 4 control 2	7/9	0.19	0	0.19	0	0	0	0	0	0.19	0.29	0	0
Red River, Strata 4 treat 2	7/9	0.20	0	0.20	0	0	0	0	0	0.59	0.29	0	0.10
Red River, Strata 5 control 2	7/14	0	0	0	0	0	0	0	0	0	0.08	0	0
Red River, Strata 5 treat 2	7/14	0	0	0	0	0	0.05	0.05	0	0	0.60	0	0
Johns Creek, #1	9/5	4.90	0	2.80	1.87	0.23	0	0	0	0	0.47	0	0
Johns Creek, #2	9/5	4.99	0.59	3.23	1.17	0	0	0	0	0	0.29	0	0
Johns Creek, #3	7/23	3.18	0	1.59	1.59	0	2.64	2.64	0	0	0	0	0
Johns Creek, #4	7/23	2.32	0	1.25	1.57	0	2.51	2.51	0	0.31	0	0	0
Moore Creek, #1, lower	7/23	0	0	0	0	0	2.92	2.92	0	0	0	0	0
Moore Creek, #2, upper	7/23	0	0	0	0	0	2.20	2.20	0	0	0	0	0
Ten Mile Creek, #1, lower	8/13	2.11	0	1.14	0.97	0	0	0	0	0	0	0	0
Ten Mile Creek, #2, upper	8/13	1.60	0	0.71	0.89	0	0	0	0	0	0	0.18	0

Table 18. Chinook salmon trend redd counts on four tributaries of the South Fork Clearwater drainage 1996.

Drainage	Reach	Type <sup>a</sup>	Description	Date	Method	Redds	Live	Dead
American River	NC4	T	Lick Creek to Kirks Fork	9/3	Aerial	6	8	0
		ISS	Mouth to Limber Luke	9/3	Aerial	5	4	0
Crooked River	NC-6	T	Mouth to Forks above Old Orogrande	9/3	Aerial	4	4	0
Newsome Creek	NC-8	T	Mouth to Radcliffe Creek	9/3	Aerial	4	4	0
Red River	NC-1	T	Weir to Cole 66 Bridge	9/3	Aerial	29	18	6
<b>South Fork Clearwater Drainage Aerial Total</b>						<b>48</b>	<b>38</b>	<b>6</b>

<sup>a</sup>T = traditional transect

## **SMALLMOUTH BASS**

### **Methods**

We sampled smallmouth bass *Micropterus dolomieu* in the Clearwater, Snake and Salmon rivers using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Sampling took place during daylight hours to avoid safety hazards. Smallmouth bass were also captured using angling techniques. Length frequencies were constructed.

We duplicated 1991 through 1994 electrofishing efforts in an area temporarily dewatered during the 1992 drawdown test in Lower Granite Reservoir. We used the same techniques each year. The sampling area was on the Idaho shore of the slackwater reach between U.S. Highway 12 bridge and the Lewiston Grain Growers elevators at Lewiston, Idaho.

### **Results**

#### **Clearwater River**

During April through August in the lower Clearwater River, we captured 2,052 smallmouth bass by electrofishing and measured 680 (Figure 7).

#### **Snake River**

Two sections of the Snake River were electrofished, one between the Interstate and Southway bridges and the other above Pittsburg Landing. Data for smallmouth bass collected in the lower transect is used to compare with previous years' information from the same section (Figure 8).

#### **Salmon River**

Smallmouth bass were collected by angling and electrofishing in the lower Salmon River in late summer 1996. One hundred and seventy-four fish were collected and measured (Figure 9). As in previous years, most of these fish were over 240 mm total length.

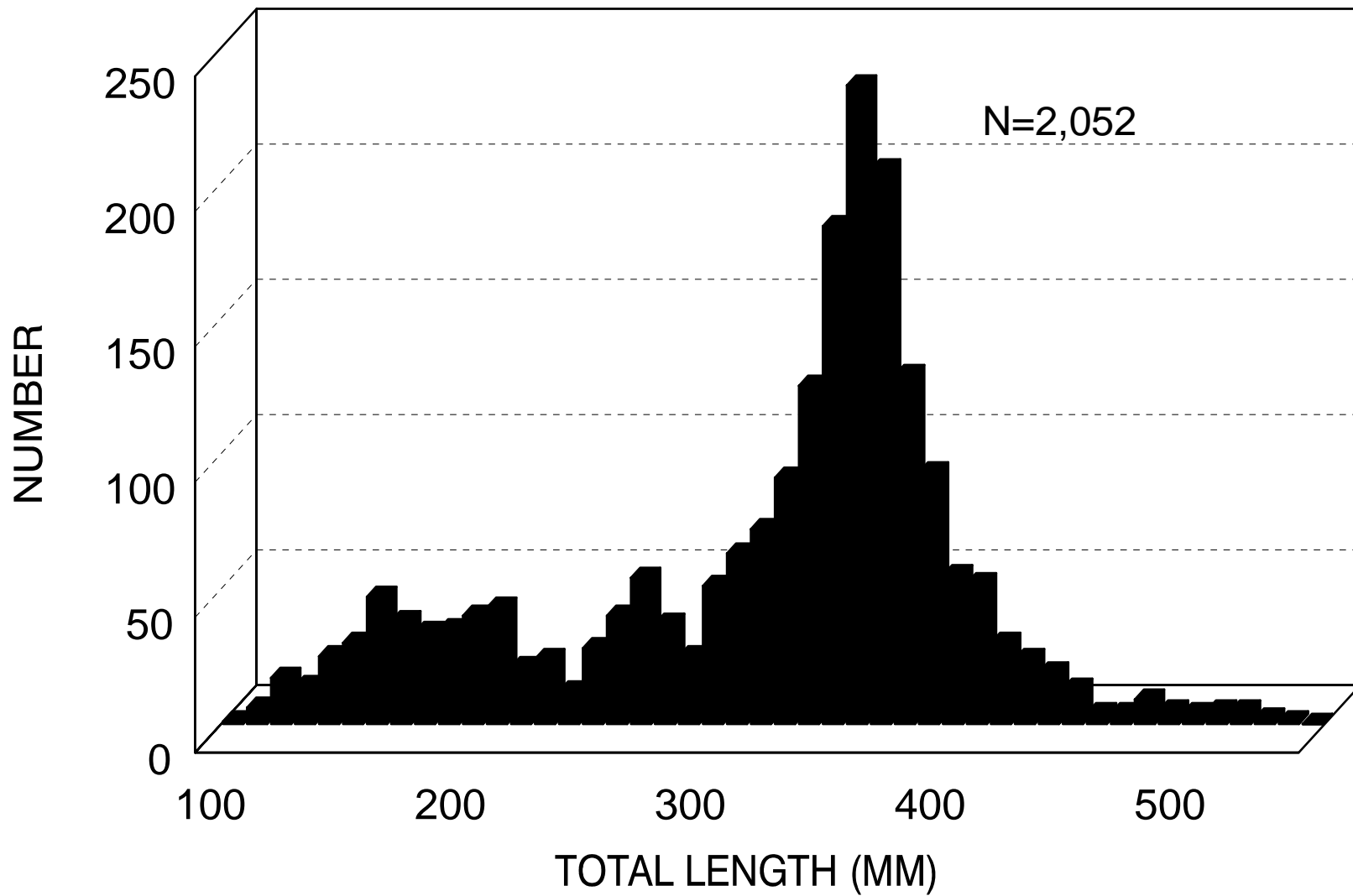


Figure 7. Length frequency of smallmouth bass electrofished in the North Fork Clearwater River below Dworshak Dam and the Clearwater River below Orofino, April 8 - August 30, 1996.

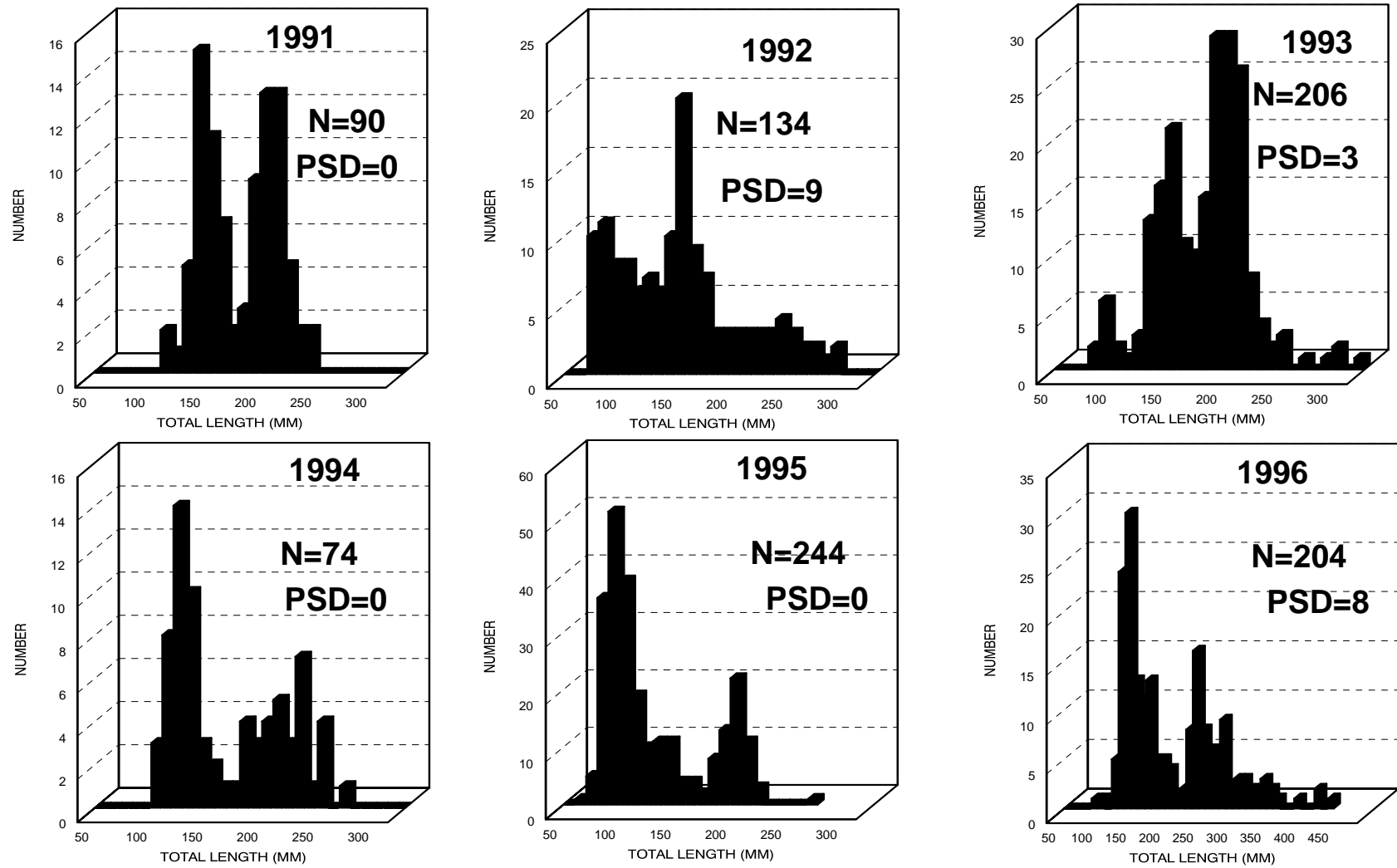


Figure 8. Comparison of length frequency of smallmouth bass collected by electrofishing in the same stretch of Snake River at Lewiston, ID, 1991-96.

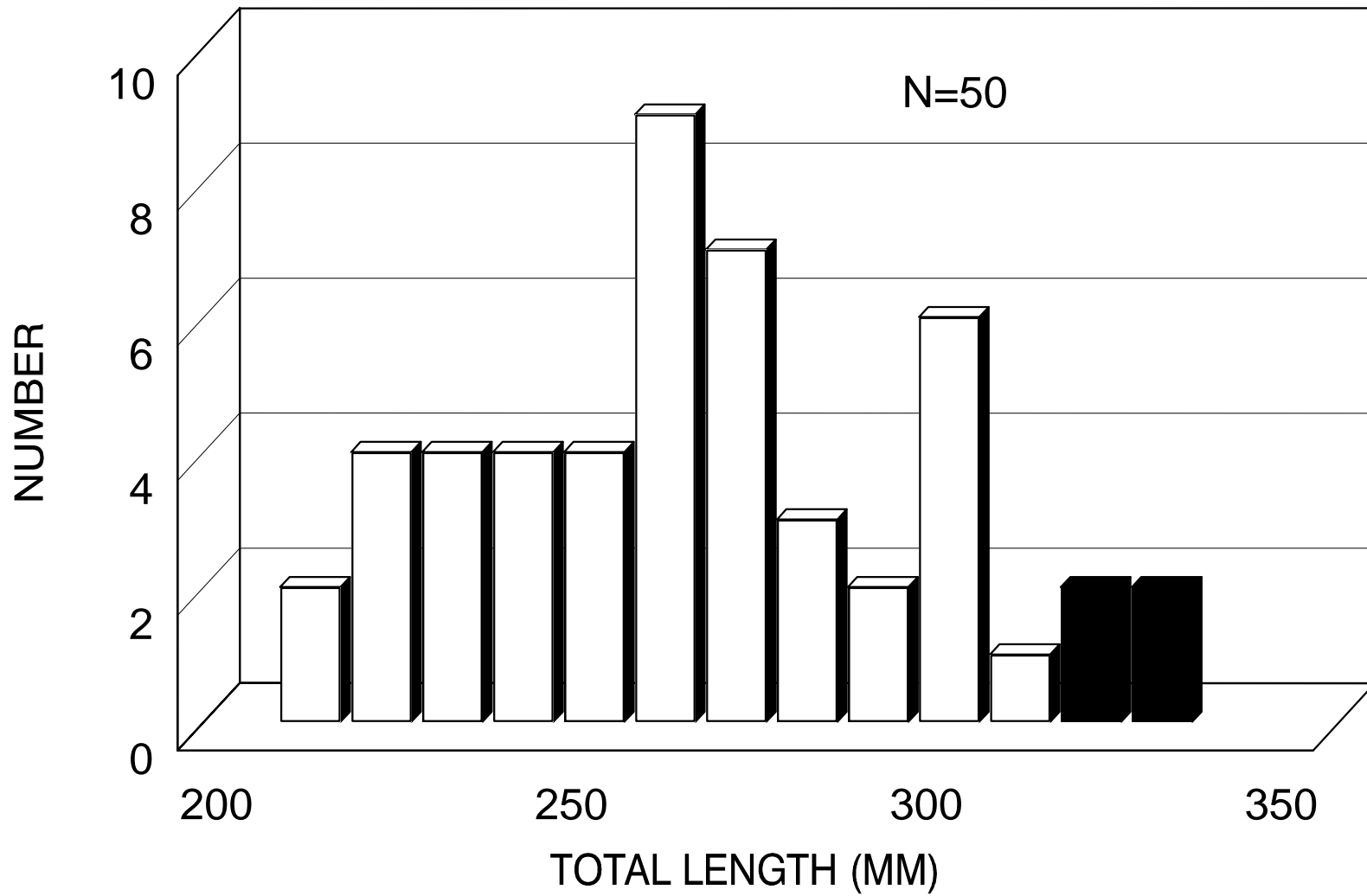


Figure 9. Length frequency of smallmouth bass collected by angling in the lower Salmon River below White Bird, 1996.

## **WHITE STURGEON**

### **Methods**

We sampled white sturgeon with traditional hook-and-line methods in the Snake and Salmon rivers. Passive integrated transponder (PIT) tags were inserted in the left side of the fish, just below the base of the dorsal fin. Sturgeon were inspected for previous marks, tags and hook scars.

### **Results**

#### **Snake River**

During the 1996 field season, fishery management personnel and volunteers captured and PIT-tagged 26 white sturgeon on the Snake River between Lewiston and Hells Canyon Dam (Table 19). In addition, another 10 white sturgeon were captured which had previously been PIT-tagged (Table 20).

#### **Salmon River**

Seven white sturgeon were captured in the lower river below White Bird and these fish were PIT tagged (Table 21). One fish was recaptured the next day (Table 20).

## **SALMONID SAMPLING AND DIET ANALYSIS**

### **Methods**

As in 1992 through 1995, we sampled residualized hatchery steelhead trout smolts and wild rainbow trout in the Salmon and Clearwater rivers. In the Clearwater River, we used pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Steelhead smolts were collected using traditional hook-and-line methods in the Salmon River.

All trout were measured for length. Residualized hatchery steelhead trout smolts in the Salmon River were sacrificed and their stomachs dissected for diet analysis. Wild rainbow trout were released unharmed. Hatchery steelhead trout juveniles were identified by a missing adipose fin.

Table 19. Summary of white sturgeon captured and tagged with passive integrated transponders (PIT) in the Snake River, Hells Canyon reach, 1996.

PIT tag no.	Date captured	Total length (cm)	Fork length (cm)
7F7D0E340F	5/4	291	102
7F7D0E3619	5/12	337	191
7F7D0E334F	7/7	327	87
7F7D0E3273	9/18	285	86
7F7D0E3461	9/18	291	116
7F7D0E340A	8/30	285	67
7F7D0E3422	8/30	291	91
7F7D0E3165	8/30	285	83
7F7D0E1E36	8/30	285	71
7F7D0E302D	8/30	285	88
7F7D0E2E62	8/30	285	197
7F7D0E385E	8/30	285	80
7F7D0E2E51	9/18	285	83
7F7D0E3456	8/27	238	230
7F7D0E2331	8/27	365	218
7F7D0F2C1F	7/14	321	73
7F7D0F374D	9/18	285	95
7F7D0F3915	9/18	285	106
7F7D0F2752	8/30	285	210
7F7D0F2B5F	8/30	285	218
7F7D0F297C	8/30	285	72
7F7D0F2A53	8/30	285	69
7F7D0F3062	8/30	285	82
7F7D0F2D3A	8/30	285	73
7F7D0F234E	8/30	285	87
7F7D0F2738	9/8	298	172



Table 20. Recaptures of white sturgeon with passive integrated transponder (PIT) tags in the Snake River below Hells Canyon Dam, and the Salmon River, 1996.

PIT tag No.	Date of recapture	Total length (cm)	Length increase (cm)	Rkm of recapture	Rkm moved	Days at large
<u>Snake River</u>						
7F7D0D6C25	8/9	84	UNK	298	UNK	UNK
7F7D0D683F	8/30	90	-8	283	0	815
7F7D052513	8/30	82	+3	283	1.6	815
7F7D0F3C07	8/30	84	0	283	0	512
7F7D0A2D0F	8/30	192	+19	283	0	1457
7F7D0F2A42	8/30	94	+2	283	0	356
7F7D0F267B	8/30	78	-2	283	0	490
7F7D0F267E	8/30	125	+2	286	0	547
7F7D0D7B3E	9/8	90	+4	294	0	1149
7F7D0E2331	8/27	218	UNK	363	UNK	UNK
<u>Salmon River</u>						
7F7D0F2638	8/31	116	0	54.4	0	1

Table 21. Summary of white sturgeon captured and tagged with passive integrated transponders (PIT) in the Salmon River, Idaho, 1996.

PIT tag no.	Date	RKM	Total length (cm)	Fork length (cm)
7F7D052F59	7/8	68.8	244	224
7F7D052E62	7/20	20	114	107
7F7D0F2930	8/3	27.2	164	148
7F7D0E3110	8/3	24	125	114
7F7D0E240B	8/21	23.4	184	169
7F7D0F2638	8/31	55.2	116	101
7F7D0E222E	8/31	55.2	256	236

## **Results**

### **Clearwater River**

The Clearwater River below Orofino (rkm 65) was sampled by electrofishing from April 8 to August 30 (Table 22). Two hundred and eighty-three residualized steelhead and three unspecified hatchery rainbow trout were collected in 2,976 minutes of electrode-on sampling. No trout originating from fingerling plants were collected in the Clearwater River. Rainbow trout stocked in the Clearwater River most likely suffered from high emigration losses as a result of a 100-year flood event in February 1996.

### **Salmon River**

We sampled sections within the lower 80 km of the Salmon River with hook-and-line techniques from August 18-22, 1996. We collected 52 rainbow trout in an estimated 146 hours of effort. Residualized hatchery steelhead smolts represented 49.0% (26/53) of the sample. Stocked fingerling trout accounted for 35.8% (19/53) of the sample. Domestic Kamloops strain outnumbered Spokane strain in the sample 3:1. Two year classes of fingerlings were represented in the sample. Of fish planted in 1995, total length of fish caught ranged from 280 to 330 mm, and those stocked in 1994 ranged from 390 to 440 mm total length.

We dissected the stomachs of all 46 hatchery origin trout collected from the Salmon River and examined the content. Diet consisted of aquatic and terrestrial insects, aquatic snails and green algae. No fish or fish parts were identified in the contents of any hatchery origin trout stomachs (Table 23).

### **Snake River**

We sampled the Snake River from Hells Canyon Dam to the Salmon River on June 18-21. We collected 35 residualized hatchery steelhead smolts. We examined the stomachs of all 35 fish by dissection. Diet consisted almost exclusively of aquatic insects (adult caddis flies). Five fish had juvenile crappie or perch in their stomachs.

## **CATCHABLE TROUT INTRODUCTIONS**

Over 13,000 catchable rainbow trout were stocked in eight streams in the Clearwater Region in 1996 (Table 22).

Table 22. Length frequency of hatchery steelhead smolts (HST) and unmarked hatchery rainbow trout (HRBT) collected by electrofishing on the Clearwater River, 1996.

Length (mm)	HST	HRBT
80	1	0
90	0	0
100	0	0
110	0	0
120	4	0
130	7	0
140	11	0
150	9	0
160	34	0
170	31	0
180	44	0
190	30	0
200	23	0
210	31	0
220	23	0
230	13	0
240	3	0
250	6	0
260	1	0
270	3	0
280	0	0
290	0	0
300	0	0
310	1	0
320	2	0
330	1	0
340	1	0
350	1	0
360	0	0
370	0	0
380	0	0
390	0	0
400	1	0
410	1	0
420	0	0
430	0	0
440	0	0
460	0	0
470	0	1
480	0	0
490	0	2
500	1	0
TOTAL	283	3

Table 23. Length frequency of rainbow trout collected by hook and line in the lower 80 kilometers of the Salmon River, 1996.

Length (mm)	Residualized steelhead adipose clip r&r	Domestic Kamloops LV clip r&r	Spokane rainbow RV clip r&r	Hatchery rainbow (no mark) r&r	Natural rainbow r&r	Total
150	1				1	2
160						0
170						0
180						0
190						0
200					1	1
210	2					2
220	1				2	3
230						0
240	1					1
250	1					1
260	3					3
270	1				1	
280	2	3		1		6
290	2	1	1			4
300	3	3				6
310	3				1	4
320	3					3
330		1			1	2
340	2					2
350						0
360					1	1
370						0
380	1					1
390		1				1
400		2				2
410		1				1
420		3				3
430			2			2
440			1			1
450						0
460						0
470						0
480						0
490						0
500						0
Total	26	15	4	1	8	52

## KOKANEE SALMON SPAWNING GROUND COUNTS

### Methods

Since 1981, four to six tributaries to Dworshak Reservoir are surveyed annually in late September to estimate the size of the kokanee salmon *Oncorhynchus nerka* spawning run from the reservoir. The survey is conducted by enumerating fish starting from the mouth of each tributary upstream until kokanee are no longer observed.

### Results

On September 25, 1996 we counted 2,569 kokanee spawner counts in three index tributaries of the North Fork Clearwater River (Table 24). This represents the second lowest count since trend counts began in 1981 and approximately 12% of the average count from the previous nine years.

## CREEL CENSUS

### Methods

Clearwater Region fish management personnel and conservation officers performed spot check creel census surveys throughout the region in 1996.

### Results

Twenty-four streams were censused on a random basis in 1996 (Table 25). Regional personnel checked 247 anglers who fished 290 hours. Anglers reported catching 580 game fish, averaging 1.95 fish per hour.

Table 24. Number of spawning kokanee observed in selected tributaries to Dworshak Reservoir, Idaho, 1981-1996.

Year	Trend Count Area				Dog Creek	Breakfast Creek
	Isabella Creek	Skull Creek	Quartz Creek	Total		
1981	4,000	3,220	850	8,070		
1982	5,000	4,500	1,076	10,576		
1983	2,250	135	66	2,451		
1984	9,000	2,200	1,000	12,200		
1985	10,000	8,000	2,000	20,000		
1986	ND	ND	ND	ND		
1987	3,520	1,351	1,477	6,348	700	23
1988	10,960	5,780	6,080	22,820	1,720	14,760
1989	11,830	5,185	2,970	19,985	1,720	14,402
1990	10,535	3,219	1,702	15,456	1,875	1,149
1991	4,053	1,249	693	5,995	590	3,557
1992	7,085	4,299	1,808	13,192	1,120	
1993	29,171	7,574	2,476	39,221	6,780	
1994	14,613	12,310	4,501	31,424	1,878	
1995	12,850	20,850	2,780	36,480	1,160	
1996	2,552	4	13	2,569	82	

Table 25. Summary of impromptu creel surveys in Clearwater Region rivers, 1996.

Date	Anglers	Total hours	RBT	HRBT	CUT	SMB	STH	SHS	SQW	BLT	BKT	Total	CPUE
American River													
5/25	3	4	8	0	0	0	0	0	0	0	0	8	2.00
7/5	3	2.5	0	4	0	0	6	0	0	0	0	10	4.00
7/21	3	1	1	0	0	0	0	0	0	0	0	1	1.00
Total	9	7.5	9	4	0	0	6	0	0	0	0	19	2.53
Big Creek													
7/20	8	5	10	0	0	0	0	0	0	0	0	10	2.00
Big Sand Creek													
8/8	4	N/A	0	0	4	0	0	0	0	0	0	4	N/A
Clearwater River													
6/23	8	7	0	0	2	2	0	0	1	0	0	5	0.71
8/10	6	3.5	0	0	4	0	0	0	0	0	0	4	1.14
Total	14	10.5	0	0	6	2	0	0	1	0	0	9	0.86
Clearwater River, South Fork													
5/25	8	15	0	0	0	0	0	0	0	2	0	2	0.13
6/29	14	14.5	6	0	2	0	0	0	0	0	0	8	0.55
7/6	22	31	41	0	0	0	0	0	0	0	1	42	1.35
7/13	9	13.5	4	0	0	0	0	0	0	0	0	4	0.30
7/16	9	8	4	0	1	0	0	0	0	0	0	5	0.63
7/20	6	5	0	0	0	0	0	0	0	0	0	0	0.00
7/21	3	2.5	0	0	0	0	0	0	0	0	0	0	0.00
9/1	21	14.5	15	0	1	0	0	0	0	0	0	16	1.10
Total	92	104	70	0	4	0	0	0	0	2	1	77	0.74
Crooked River													
5/25	2	1	0	0	0	0	0	0	0	0	0	0	0.00
Colt Creek													
7/2	1	.5	0	0	11	0	0	0	0	0	0	11	22.00



Table 25. Continued.

Date	Anglers	Total hours	RBT	HRBT	CUT	SMB	STH	SHS	SQW	BLT	BKT	Total	CPUE
Crooked Fork Creek													
7/31	0	0	0	0	0	0	0	0	0	0	0	0	0.00
8/19	1	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21	5	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	6	2	0	0	0	0	0	0	0	0	0	0	0.00
Fish Creek													
7/5	1	.25	0	0	0	0	0	0	0	0	0	0	0.00
7/6	1	.5	0	0	0	0	0	0	0	0	0	0	0.00
7/11	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/15	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	2	.75	0	0	0	0	0	0	0	0	0	0	0.00
Gedney Creek													
7/5	3	2	0	0	1	0	0	0	0	0	0	1	0.50
7/25	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/29	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	3	2	0	0	1	0	0	0	0	0	0	1	0.50
Hoodoo and Horse Creeks													
8/1	1	2	0	0	7	0	0	0	0	0	37	44	22.00
Lawyers Creek													
5/25	7	7	0	0	0	0	0	0	0	0	0	0	0.00
6/29	2	1	0	0	0	0	0	0	0	0	0	0	0.00
Total	9	8	0	0	0	0	0	0	0	0	0	0	0.00

Table 25. Continued

Date	Anglers	Total hours	RBT	HRBT	CUT	SMB	STH	SHS	SQW	BLT	BKT	Total	CPUE
Meadow Creek													
7/5	3	2	3	0	6	0	0	0	0	0	0	9	4.50
Moose Creek													
7/1	4	5	0	0	2	0	0	0	0	0	0	2	0.40
8/18	7	31	14	0	90	0	0	0	0	0	0	104	3.35
Total	11	36	14	0	92	0	0	0	0	0	0	106	2.94
Newsome Creek													
7/6	4	6	5	0	0	0	0	0	0	0	0	5	0.83
8/7	2	2	4	0	0	0	0	0	0	0	0	4	2.00
Total	6	8	9	0	0	0	0	0	0	0	0	9	1.13
O=Hara Creek													
7/5	3	5	2	0	0	0	0	0	0	0	0	2	0.40
Red River													
7/5	11	8	5	0	0	0	7	0	0	0	0	12	1.50
Salmon River													
5/25	14	20	10	0	0	0	0	15	0	0	0	25	1.25
6/30	4	4	0	0	0	0	0	0	0	0	0	0	0.00
7/21	5	5.5	0	0	0	5	0	0	0	0	0	5	0.91
Total	23	29.5	10	0	0	5	0	15	0	0	0	30	1.02
Savage Creek													
7/2	1	.5	0	0	21	0	0	0	0	0	0	21	42.00

Table 25. Continued

Date	Anglers	Total hours	RBT	HRBT	CUT	SMB	STH	SHS	SQW	BLT	BKT	Total	CPUE
Selway River													
6/16	1	1	0	0	0	0	0	0	0	0	0	0	0.00
6/22	0	0	0	0	0	0	0	0	0	0	0	0	0.00
6/23	4	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/11	1	2	1	0	0	0	0	0	0	0	0	1	0.50
8/17	9	27	5	0	58	0	0	0	0	0	0	63	2.33
Total	15	38	6	0	58	0	0	0	0	0	0	64	1.68
Spruce Creek													
7/13	2	1.5	0	0	3	0	0	0	0	0	0	3	2.00
7/17	1	2	0	0	7	0	0	0	0	0	0	7	3.50
Total	3	3.5	0	0	10	0	0	0	0	0	0	10	2.86
Squaw Creek													
7/13	4	0	0	0	0	0	0	0	0	0	0	0	0.00
Warm Springs Creek													
7/26	1	6	59	0	35	0	0	0	0	0	0	94	15.67
White Sands Creek													
7/2	1	1.5	17	0	0	0	0	0	0	0	0	0	0.00
7/28	6	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	7.50
8/4	5	3.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	15	10	17	0	1	0	0	0	0	0	0	48	7.38
Overall													
Totals	247	289.75	214	4	256	7	13	15	1	2	38	580	2.06

RBT = Rainbow trout  
 HRBT = Hatchery rainbow trout  
 CUT = Cutthroat trout  
 SMB = Smallmouth bass  
 STH = Steelhead

SHS = Steelhead smolt  
 SQW = Northern squawfish  
 BLT = Bull trout  
 BKT = Brook trout

## **JOB PERFORMANCE REPORT**

State of: Idaho

Program: Fisheries Management

Project II: Technical Guidance

Subproject II-B: Clearwater Region

Contract Period: July 1, 1996 to June 30, 1997

Period Covered: January 1, 1996 to December 31, 1996

### **ABSTRACT**

Clearwater Region fishery management personnel provided technical review and advice to private individuals, organizations, state and federal agencies, Indian tribes, and public schools on various projects and activities that affect the fishery resources in north central Idaho. Technical guidance also included numerous angler informational meetings, presentations, and letters.

Author:

Tim Cochnauer  
Regional Fishery Manager

## **JOB PERFORMANCE REPORT**

State of: Idaho

Program: Fisheries Management

Project III: Habitat Management

Subproject III-B: Clearwater Region

Contract Period: July 1, 1996 to June 30, 1997

Period Covered: January 1, 1996 to December 31, 1996

### **ABSTRACT**

We continued to work with local sportsmen to address late summer algae problems at Elk Creek Reservoir and dredging in Moose Creek Reservoir.

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